THE physical therapy REVIEW

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The Management of Burns — RHOADS

Prosthetic Training of a Hemiplevectomy Patient — PAINTER and von WERSSOWETZ

A Cerebral Palsy Mobile Unit — NORRIS

Home Exercise Devices — SMITH

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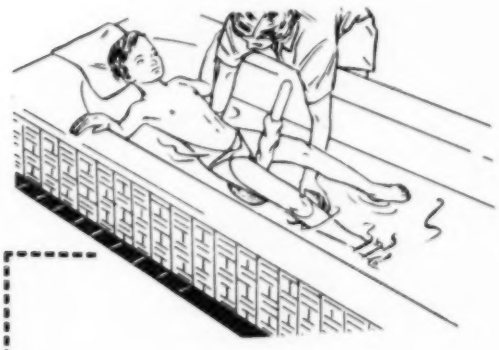

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The Physical Therapy Review

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The Management of Burns
With Special Reference to Rehabilitation *

Jonathan E. Rhoads, M.D.

Among the various injuries and diseased conditions which affect man, burns are peculiar in that they may threaten life seriously for weeks and yet, if survival is achieved, the patient has a chance of quite complete recovery. Few lesions which the patient survives require such prolonged hospitalization as severe burns. It is especially in the late phases of this treatment that physical therapy plays a large role. However, I wish to cover not only this late phase, which is of such immediate concern to the physical therapist, but also to say something about burn treatment in general and particularly the early treatment of the burn, because of the importance of this part of burn therapy in civil defense work.

When, seven years ago this summer, atomic warfare became a reality, the newspaper accounts stressed the injuries due to ionizing radiation. However, when the figures were in from the careful analyses made after the war, it became evident that the predominant injury was the thermal burn. Many of these were flash burns due to the intense thermal radiation from the bomb; others of course were secondary burns resulting from the ignition of houses and other inflammable material. In Hiroshima, which was a city of approximately 300,000 inhabitants, of the total number of casualties about 60 per cent had burns due to heat, whereas, about 20 per cent were suffering chiefly from radiation of the ionizing type. In a city like Philadelphia, a bomb which burst at approximately 2,000 feet of altitude could affect a population of 300,000 to 400,000 individuals in a downtown section during business hours. Table I indicates the number of burn casualties which would be likely to result from such an explosion based on the Japanese experience. It is immediately evident that the medical resources of the community could provide proper treatment for only a small fraction of this number of casualties, even assuming that hospitals, nurses, and doctors survived the explosion 100 per cent, which would not be the case.

TABLE I

PROBABLE PLASMA REQUIREMENTS AFTER A SINGLE AIR BURST OVER A CITY such as Philadelphia

Radius of Severe Injuries	3,000 yards
Population in Affected Area	300,000 persons
Total Injuries:	
Severe But Not Hopeless	200,000 persons
Mechanical Injuries Only	25,000 persons
Thermal Injuries — with or without mechanical injuries	100,000 persons
Radiation Injuries	30,000 persons

Of what, then, does the early treatment of the burn consist? The first way in which a burn threatens life is by the production of shock. Burn

From the Harrison Department of Surgical Research, Schools of Medicine, University of Pennsylvania and the Surgical Clinic of the Hospital, of the University of Pennsylvania, Philadelphia.

*Read at the Annual Conference of the American Physical Therapy Association, Philadelphia, June 1952.

shock is brought about by a decrease in the total volume of the circulating blood. There are certain auxiliary mechanisms but this appears to be the main mechanism. This decrease is due mainly to loss of plasma, though there is a substantial loss of red blood cells also which continues for a considerable period. The plasma is lost from the circulation chiefly into the area near the burn and the loss apparently results from an increased permeability of the capillary wall, or possibly an increased pressure within the lumen of the capillaries. The plasma loss is rapid and extensive. It occurs chiefly in the first 36 to 48 hours. After this, further loss of plasma may occur gradually through the surface of the burn wound but this is seldom at a rapid enough rate to cause shock.

When acute shock is the immediate danger, two questions become foremost. First, how do you recognize shock and, second, how do you treat it? The recognition of shock is not as easy as it sounds. In extreme forms, the patient may be pulseless, his extremities cold and livid, and consciousness may be at a low ebb. In short, the patient may look as though he were about to die, which indeed he is. The earlier or premonitory signs of this state are less definite. When environmental temperatures are normal, coldness of the hands and feet extending up the wrists and ankles toward the shoulders and hips is a very useful sign. A fast pulse is suggestive when present but is not well correlated with the degree of loss of blood volume. If one is in a position to take blood pressure, a fall in blood pressure is important. Any fall below 90 is, at least, presumptive evidence of shock. Blood pressures of 60 or below not only indicate the presence of shock but one can feel fairly certain that, if such pressures are not brought up by treatment promptly, a condition of irreversibility is likely to develop from which the patient cannot recover, regardless of how much treatment he receives. A fall in blood pressure is a relatively late manifestation of the progressive decrease in blood volume which leads to shock and, whenever possible, treatment should anticipate such a fall in blood pressure.

In dealing with thermal burns, the area of the burn is important, particularly if the burn is severe enough to cause blood coagulation (second degree burn). Broadly speaking, healthy individuals with burns involving less than 10 per cent of the body surface are not likely to go into shock and again, broadly speaking, those with involvement of 15 per cent or more of the body surface will probably need treatment for shock.

In considering treatment for shock, we should restrict ourselves to the treatment of burn shock, since that is what we are talking about, and treatment of burn shock has little to do with the treatment of fainting. Such measures as the application of warmth, the use of sedatives to relieve pain, reassurance, which are so often mentioned in the first aid manuals, are somewhat beside the point. I should consider them as useful auxiliary steps but never to be substituted for the all important measures aimed at increasing blood volume.

In present day hospital practice, severe burns are treated by the intravenous administration of properly matched whole blood, by the intravenous administration of blood plasma or plasma substitutes, and by the intravenous administration of sodium chloride solution (9 grams to the liter) and glucose solution (usually with 50 grams of glucose to the liter) and, to a less extent, with 5 per cent glucose solution alone. There is evidence that the addition of some more alkaline solutions, such as sodium bicarbonate or sodium lactate, may be advantageous.

In a major disaster, it is evident that the supply of whole blood will be quite inadequate. The supply of plasma is likely to be inadequate too and, in the use of large pools of plasma, the danger of conveying a virus capable of producing a highly dangerous jaundice one or two months later, is not inconsiderable. Polyvinylpyrrolidone, a plasma substitute much used in Germany and to a lesser extent in this country, may be stockpiled in significant amounts and a number of other plasma substitutes may also be stockpiled in suitable form for intravenous administration. Likewise, it is to be hoped that large quantities of salt solutions, suitable for intravenous use, will be stockpiled as these are of considerable value in burn shock.

The question of whether sodium chloride solution given by mouth with or without sodium lactate will prove to be an adequate substitute for intravenous therapy is still being studied. The great advantage of this route is that it does not require distilled water and the solutions could be mixed up by any educated person from table salt, potable water, and perhaps some baking soda. In experimental animals, the oral route is much less effective. If therapy is begun early, however, it is probably better than nothing and certainly should be kept in mind for use should lack of preparation or lack of trained personnel make it impossible to use the intravenous route.

I am hopeful that physical therapists with their skill in handling patients, their knowledge of anatomy, and of medical methods will have the

opportunity of perfecting themselves in doing venipunctures so that, in the event of major disasters, they will be prepared to take an active part in the administration of fluids by the intravenous route.

In the treatment of shock, one needs to have some idea of the quantity of fluids required. The formula suggested by Evans in which the area of the burn in per cent is multiplied by the weight in *kilograms* in order to get the number of cubic centimeters of *protein containing fluid* to be given on the first day is a useful one. To get the *total fluid* to be given in the first day, one might multiply the *pounds* of body weight times the area of the burn. In other words, Evans recommends for a 30 per cent burn in a 70 kilogram individual about 2100 cc. of blood or plasma, 2100 cc. of saline plus a sufficient amount of dextrose and water to take care of loss through sweat and evaporation from the lung (another 1 to 2 liters). For very extensive burns, he has suggested a limit of 7 or 8 liters in total fluid. During the second day, perhaps half these amounts are required and after that about 3000 cc., most of which can usually be taken by mouth. Area is usually estimated in per cent of body surface by the "rule of 9"; 9 per cent for the head, 9 per cent for each arm, 18 per cent for the back, 18 per cent for the front of the body, and 18 percent for each leg.

Experimental studies show that the loss of plasma after a burn is rapid; as much is lost in the first six hours as in the ensuing 30 hours. Therefore, it is often important to start treatment early. In any major disaster there will, of course, be a large number of people who are injured beyond hope of recovery.

Unfortunately, if the patient survives the danger of shock as the result of good treatment, his troubles are not necessarily over. He may still die of infection or he may die of changes occurring in the various organs distant from the burn, the cause of which is not entirely clear. To guard against infection, it is important to think of the burn as a wound and to protect it insofar as possible from contamination. Unfortunately, such contamination is almost inevitable and it is a good working rule that no third degree burn ever heals without bacterial growth occurring in it. Second degree areas, however, may often heal without clinical infection, and the main criterion for good treatment is probably to avoid using anything which would injure tissues. Probably, the best method of treatment is to cleanse the wound gently with white soap and sterile water, to rinse it off with saline, and to apply vaseline gauze and dressings. This usually requires anesthesia. If the cleansing process is reduced to merely removing gross bits of dirt, clothing, loose skin, et cetera, with forceps and applying a dressing, it may be carried out without anesthesia and, with the aid of antibiotics, this may be nearly as effective.

Paradoxically enough, the last few years have demonstrated that under appropriate conditions no dressings at all, the "open treatment," may be quite successful. Current opinion is, however, that it should not be used on the hands and that it is not very suitable for burns which involve the entire circumference of the chest or abdomen and back, and that the individual must be effectively protected from insects, particularly flies. Where it has been used successfully, generally it has been in the hands of very expert people and it remains to be seen whether it will be safe in the hands of the many volunteers with relatively simple first aid training who might be called upon to use it. At present, it would seem best to recommend that burns be covered, preferably with sterile, but if this is not available, clean cloth, such as freshly laundered sheets torn into bandages.

Penicillin is important in preventing invasive infection as are the other leading antibiotics. Tetanus should be guarded against by appropriate prophylaxis.

There is no certain method of protecting the distant organs such as the kidneys, the liver, the adrenal, but early treatment of shock and protection against infection appear to be important measures. Such injuries, if fatal, usually become manifest within the first week or ten days, though this is not an invariable rule. Following this, most of the second degree areas are healed or are obviously healing, but the third degree areas where the full thickness of the skin is destroyed persist. These call for early removal of the dead tissue, usually in an operating room, and early skin grafting. Where very large areas are destroyed, it is sometimes advantageous to take skin from another individual. It cannot be expected to remain, except when one has the unusual opportunity of transferring skin from one identical twin to the other. It frequently takes and remains in place for one to three months. This gives the individual a tremendous advantage which he would not have otherwise because, while it is in place, it stops the steady loss of plasma, aids in the restoration of the nutrition of the individual, reduces the amount of infection to which he is exposed, and usually provides time for transfer of the individual's own skin to cover the most critical areas.

The recovery from extensive third degree burns is often long and drawn out. Granulation tissue accumulates and becomes scar tissue. Especially where this is near joints, limitation of motion results. Often it is necessary to splint joints for fairly long periods of time in order to provide favorable conditions for the healing of epithelium. These factors may well result in terrific contractures and deformities and in serious stiffness, and it is in such cases that physical therapy is so important. Photographs of one of our recent patients are presented in Figures 1 and 2. This boy accompanied his father to a dump where they were disposing of some rubbish. In one portion of the dump a layer of inflammable material had been covered by a layer of non-inflammable material and fire had burned back through the inflammable layer with the result that, when the patient stepped on the non-inflammable surface, it gave way and deposited him in a bed of ashes which quickly ignited his clothing. In spite of being removed promptly, he sustained severe burns of both legs, both arms, and considerable portions of the abdomen and back. Due to a series of circumstances which I will not go into in detail, except to say that it was not due to tight dressings, one hand lost its blood supply and had to be amputated. The healing process resulted in marked deformity of the fingers of the other hand and much scar tissue about the knees, but, due to the vigilant efforts of our physical therapy department at the Hospital of the University of Pennsylvania, actual contractures at the knees were avoided. After spending the following winter in bed, our patient was able to get up this spring and was taught to walk again. He now walks quite well on the level and can go upstairs readily, though going downstairs is still a bit of a problem. In spite of our efforts, he has lost much of the normal motion of his fingers; however, the joints are not stiff and he is able to do a surprising amount. We decided to wait for a few months once we had his skin covered before undertaking the necessary plastic procedures on his fingers. This will involve transplanting some fresh skin, probably in the form of pedicle grafts, to the palmar side and after this physical therapy will again play an important role in reestablishing motion as it has already played an important role in preserving what motion he has. A little later on, we will have to consider the possibility of plastic procedures aimed at giving him a more useful prosthesis on the left side. This again will require a great deal of work on the part of the physical therapy department.

Another way in which physical therapy has made a large contribution in the field of burns, has been in the field of hydrotherapy. Many patients with severe burns benefit by being allowed to get into a tub. This helps to soak off crusts and to loosen adherent dressings. It frequently seems to have a beneficial effect on the wound surfaces and, by neutralizing the effects of gravity, it often makes it possible for the more reluctant patients to begin motion earlier than they otherwise would.

It is hardly necessary to emphasize the occupational therapy aspect of physical therapy. By this, I mean that the daily visits to the physical therapy department provide a program for the patient and an activity in which he can measure his progress and the proficiency which he gains. The psychological advantage of such a program, conducted with the sympathetic encouragement which physical therapists know so well how to provide, is immeasurably useful. Its usefulness

Figure 1. Five days following injury showing burn eschar.

Figure 2. Three months following injury showing grafted skin.

is often attended by improvement in appetite, improvement in sleeping, and in a general well-being which is hard to define.

I have not undertaken to discuss specific technics or recent refinements of technics in the physical therapy of burns. Physical therapy is now a specialty in itself and I could not successfully venture very far in a discussion on the specific methods by which it obtains its objectives. I do wish, however, to express the deep appreciation which every surgeon must feel for the important help which the physical therapist can best extend toward the rehabilitation of a patient, such as I have shown you, and toward whose survival the surgical staff has devoted so many hours.

Furthermore, I wish to call your attention to the tremendous potential need for people with the knowledge of the fundamentals of burn treatment which civil defense problems inevitably cover. I hope that, in due course, physical therapists may stand ready to participate in the emergency treatment of burns as well as in the later programs for the rehabilitation of burn victims.

Meet Our New Contributors

Martha J. Norris, Physical Therapist, Cerebral Palsy Mobile Unit of the California Elks Association, received a diploma in physical education from the Bouve-Boston School of Physical Education, and her physical therapy certificate from Harvard Medical School. She attended the Boston School of Occupational Therapy where she was granted a diploma in occupational therapy in 1948 and in 1950 completed requirements for a B.S. degree in education at Tufts College.

During the war, Miss Norris served as Chief Physical Therapist with the 42nd General Hospital in Australia and in the Physical Therpay Branch of the Office of the Surgeon General in Washington, D. C.

She is a member of the American Physical Therapy Association, the American Registry of Physical Therapists, the American Occupational Therapy Association, and the National Registry of Occupational Therapists.

Cecil W. Painter, Chief, Corrective Therapy, Veterans Administration Hospital, Nashville, Tennessee, while attending Louisiana College in Pineville, had his studies interrupted by the war. After serving for five years in the Air Force, he returned to Louisiana and completed his work for a B.S. degree in physical education and health.

Following this he was Instructor, Corrective Physical Rehabilitation at the Veterans Administration Hospital in Alexandria, but resigned to enter Baruch Center of Physical Medicine, Medical College of Virginia, for physical therapy training. He received his certificate in 1948.

From November 1948 to the present, Mr. Painter has held positions in the department of Physical Medicine and Rehabilitation of the Veterans Administration. Recently, he received his M.A. degree in physical education from George Peabody College, Nashville, Tennessee.

Mr. Painter is a member of the American Physical Therapy Association and is vice-president of the Tennessee Chapter. He also holds membership in the American Registry of Physical Therapists and the Association for Physical and Mental Rehabilitation.

(continued on page 28)

Prosthetic Training of a Hemipelvectomy Patient

Cecil W. Painter, M.A. and Odon F. von Werssowetz, M.D.

A hemipelvectomy amputation may be defined as an operative procedure in which the entire lower extremity is removed through the sacroiliac and the pubic joints. Literature reveals that about 200 such amputations have been performed, and only a few of these cases have been fitted successfully with a functional prosthesis. However, no reports have been found which describe the problems involved in the rehabilitation of such a patient. In view of the increasing number of successful performances of the amputation, it is believed that the program of training used in rehabilitating a single case may be of value.

Presentation of the Case

History revealed that in September 1950 this patient, who was then thirty-one years of age, first observed his left lower extremity becoming larger than the right. Two weeks later he noticed a small, firm, movable mass on his thigh, which gradually increased in size. In October 1950, at a civilian hospital, the mass was excised from the medial aspect of the middle third of the left thigh and was diagnosed as a fibrosarcoma. The wound healed but in December 1950 the tumor reoccurred. Following X-ray treatment of three months' duration, there was no decrease of recurrence.

The patient was transferred, on April 20, 1951, from the civilian hospital to the Orthopedic Service of this hospital with a diagnosis of "sarcoma, left thigh." X-rays revealed no evidence of metastasis to the chest, pelvis, or left femur. A biopsy confirmed the diagnosis of tumor from the thigh as rhabdomyosarcoma. To completely excise the tumor, a hemipelvectomy was performed on May 11, 1951. The pelvis was disarticulated through the sacroiliac joint posteriorly and the symphysis pubis anteriorly (Figure 1.). The muscles attached to the left half of the pelvis were transected high, and the left side of the pelvis and the attached lower extremity were removed en bloc. The program of physical medicine and rehabilitation for this patient was initiated four weeks following surgery when the surgical wound was still draining.

From the Physical Medicine and Rehabilitation Service, Thayer Veterans Administration Hospital, Nashville, Tennessee.

Preprosthetic Care and Training

Since all subsequent rehabilitation procedures are based on the existing residual disability, a thorough examination was given to determine the condition of the pelvic stump. Defects in regard to contractures, muscle weakness and imbalance, and faulty segmental alignment of the body as a whole were evaluated. The initial examination revealed that although the patient displayed generalized weakness, he was free from contractures and joint limitations. A graduated program was prescribed for the patient, which aimed:

1. To assist in healing the stump and render it in the best possible condition for tolerating the stress imposed by activity and weight bearing.
2. To restore a good physical condition in regard to strength, endurance, and coordination.
3. To reestablish a normal body alignment.
4. To develop good body balance and maximal functions of right lower extremity to aid in compensating for the loss of the left lower extremity.
5. To restore the functional capacity and ability of the patient to perform the physical skills inherent to daily living.
6. To develop strong, well coordinated movement patterns that would have a carry-over value in the use of a prosthesis.

At the beginning the preprosthetic care and training program, attended twice daily, was limited in scope, mild in intensity, and short in duration. The program was gradually broadened and intensified until at the end of four weeks the patient was devoting a total of four hours daily to his activities.

Care of amputation site:

Infra-red was applied to the amputation area twice daily until the wound was healed. A pelvic corset with a removable attachment was fitted to the patient. The attachment could be adjusted snugly over the amputation site and thus provide a means for supporting dry dressings to drainage and for the insertion of padding to cushion and level the seating surface. With this arrangement, toilet needs, dressing changes, and pad adjustments could be met without removing the corset.

General exercise program:

The general exercise program was primarily aimed at the restoration of strength and endurance to the whole body; however, to accomplish this, specific exercise routines were established for muscle groups responsible for specific movements. Care was taken to assure the understanding and correct performance of each routine.

The early phase of this program consisted of manually resistive exercises of the right lower extremity, trunk exercises against gravity, and dumbbell exercises of the upper extremities. Progressive graduation was made to complete self-activated mat work. Here, trunk and upper extremity exercises were intensified, and the lower extremity exercise routines were performed against pulley resistance.

Posture alignment and pattern:

During the initial stage of ambulation, plumb line tests were made to determine faults in postural alignment. The anterior posterior alignment was good. Tests for lateral deviations revealed a postural balance effort to compensate for weight and symmetry loss. The right pelvis was elevated and rotated posteriorly. The pelvic stump was depressed and rotated anteriorly. The position was such that if the left lower extremity were present with knee extended, it would fall ahead of and slightly across the other extremity.

To prevent muscle imbalance and the disorders associated with faulty posture, to preserve a normal appearance, and to avoid later complications in prosthetic fitting and training, it was most important to correct alignment deviations and develop favorable posture patterns early. This was accomplished by (1) making the patient aware of his postural faults by pointing out incorrect and correct alignment in a mirror; (2) having him repeatedly make the change from the faulty to the good posture until the feel for correcting and maintaining the correction was firmly established; (3) establishing an understanding as to the importance of maintaining the correct posture in crutch walking and throughout daily activities; (4) constant observation and correction; and (5) specific corrective exercises to strengthen right hip abductors and external rotators.

Figure 1. X-ray showing complete absence of left half of pelvis.

Special compensatory exercises:

The amputation and the concomitant weight and symmetry loss not only necessitated postural realignment but also imposed upon the patient the need for restoration of body balance and developing maximal function of the remaining lower extremity. Special exercises were planned for accomplishing this end.

Special exercises for increasing strength and function of the right lower extremity consisted of progressive resistive quadriceps exercises (DeLorme), rising on the toes, and one leg knee bends. The ability to do complete one leg knee bends was accomplished through gradual progression. Initially, the patient practiced rising from a chair to the standing position unaided. Later, a stool of a lower height replaced the chair. By progressive stages, the seat was lowered until finally the patient could touch his buttock to the floor and rise with moderate effort.

Exercises to aid restoration of balance consisted of practice in standing, bending, hopping, turning, and bag punching without support. The patient's balance was developed to the extent that he could hop unaided in all directions, make 270° turns in mid-air, and skip rope.

Functional training:

The patient was progressed from gait training in parallel bars to a walker, then to crutches. He

Figure 2. Special preprosthetic training apparatus which enables development of walking movements under conditions approaching actual use of a prosthesis. Note good postural alignment.

Figure 3. Side view of amputation site showing the absence of a true weight-bearing stump.

was reliably and independently ambulatory for all hospital activities ten days following his initial visit. Additional functional training with crutches involved the learning of such skills as ascending and descending stairs, transferring from crutches to the mat and the mat to crutches, and crossing obstacles.

Exercise movements simulating prosthetic ambulation:

Preprosthetic exercises were developed to simulate the condition of walking with a prosthesis and thereby (1) develop the coordinated movement pattern necessary to the management of the prosthesis; (2) increase the strength of the muscle groups involved in the movement of the prosthesis; and (3) increase the capacity of the pelvic stump for tolerating pressure.

At the beginning, this training consisted of the learning of the primary movements that would be involved in managing the prosthesis and then combining these movements in a simulated prosthetic walking pattern. The primary movements performed were the elevation of the pelvic stump and the forward and backward tilting of the remaining pelvis and the stump. The simulated walking pattern was performed in parallel bars. This consisted of (1) stepping forward with the right leg while simultaneously rotating the trunk counterclockwise and allowing the pelvis and the stump to tilt forward to simulate hyperextension of the prosthesis and (2) simultaneously elevating the pelvic stump, rotating the trunk clockwise, and backward tilting the remaining pelvis and the stump to simulate a step with the prosthesis. The patient performed this walking pattern the length of the bars many times daily.

For the purpose of increasing the strength of muscle groups involved in management of the prosthesis and to increase the pressure tolerance of the stump under conditions approaching actual

use of the prosthesis, a special apparatus was constructed. Towel padding was wrapped around one of the parallel walking bars in such a way as to form a concave saddle in which to place the pelvic stump. The level of the bar was adjusted to a height of correct prosthetic leg length. A strap, fastened securely around the saddle, aided in stabilizing the stump in the saddle (Figure 2.).

The apparatus permitted the patient to ambulate. Friction between the parallel bar and the saddle provided resistance to movements of the pelvic stump. The amount of resistance was controlled by adjusting the degree of tightness of the toweling around the bar and by using talcum powder on the bar to reduce friction.

Initially, the patient maintained his balance and reduced the amount of pressure borne on the stump during a step with the right leg by supporting most of his weight by grasping the parallel bars. As efficiency in the use of the saddle improved and his tolerance to sustain pressure on the pelvic stump increased, he graduated to the use of a cane in his right hand for support. Finally he was able to ambulate with the right hand swinging freely at his side.

The patient moved the saddle along the bar by the movements of the simulated walking pattern described above. Since contact with the saddle depended on partial weight bearing, hiking of the stump to simulate lifting of the prosthesis could not be performed. At first, emphasis was placed on the maintenance of a good walking posture and the elimination of substitute or unnecessary movements. Later, attention was focused on developing walking rhythm by perfecting step timing and step length.

Through this training routine, the patient developed excellent coordination, strength and rhythm in ambulation approaching that of prosthetic walking. The pressure tolerance of the pelvic stump had increased to the point where he could sustain his entire weight on the parallel bar with only his corset as padding.

The prosthetic appliance was not provided for this patient until nine months following surgery. This allowed an ample length of time for adequate healing of the stump and sufficient consolidation of tissue to take place. Also, there was a reasonable assurance that tumor metastasis would not recur. A plaster of Paris cast of the pelvic stump was made to mold a celastic socket. In addition, a celastic belt (eight inches in width) was molded to conform to the waist and the upper part of the remaining pelvis. These two pieces were joined by lacing at the front and back. It must be realized that no true stump was actually present and that weight bearing surfaces were of soft tissue mass (Figure 3.). The snugly fitted belt held the socket securely and transmitted the greater portion of the weight load to the sound side. When finished, the molded celastic was padded, then covered with soft leather (Figure 4.).

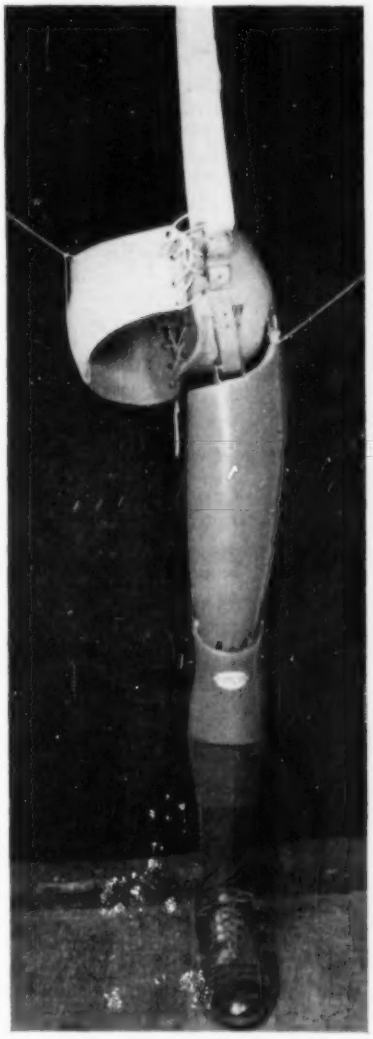

Figure 4. The prosthesis after completion.

The prosthesis itself was of the willow wood type with the conventional ankle articulation.

The knee and hip joints were of special design (Figure 5.). The knee joint was equipped with an adjustable wing-bearing knee brake. Weight bearing on a conventional knee joint when it is partially flexed will result in a buckling of the prosthesis unless the patient is able to extend his stump in time to offset the collapse. Since the hemipelvectomy patient cannot offset such a collapse, a braking action at the joint under weight bearing affords a substantial amount of security for this type of amputee. The hip joint was provided with a device which automatically locked when the prosthesis was extended to a neutral position. The hip joint remained locked throughout activity; however, it could readily be released to allow for flexion of the thigh when sitting.

POSTPROSTHETIC TRAINING

The objectives of the postprosthetic training program were:

1. To evaluate the prosthesis and make the necessary changes, thus assuring a properly fitted and functionally useful appliance.
2. To duplicate to the highest practical degree the efficient and cosmetic elements of the normal gait pattern.
3. To aid the patient in mastering the basic skills and safeguards associated with the wearing of a prosthesis.

These objectives were achieved after a six weeks' program which included gait training and evaluation of the prosthesis. These were accomplished simultaneously.

Gait training:

The patient was capable of independent ambulation on the first day that he wore the prosthesis. Observations of the initial gait of the patient were that:

1. The prosthesis was brought forward by simultaneously rising on the ball of the right foot, flexing the right knee, and throwing the trunk backward.
2. The patient had difficulty in clearing the floor with the prosthesis.
3. The heel of the prosthesis was brought into contact with the floor by lowering the body through additional right knee flexion.
4. The prosthesis swung back from its most forward point of progress before heel contact was made.
5. The patient laterally flexed his trunk toward the prosthetic side while taking a hurried step with the right leg.

At first the postprosthetic gait training sessions were of short duration with frequent rest periods. This enabled the patient to put forth maximum concentration and effort on learning a proper gait pattern at the beginning. It also reduced the chances of injury to the stump by friction or pressure which frequently results from prolonged wearing of an untried prosthesis. In order to eliminate the faults observed in the patient's initial gait and to establish a correct movement pattern, the following measures were taken:

1. Gait training was performed in the parallel bars where stability and security were assured and the patient's attention could be focused on movement patterns.
2. A temporary, one-half inch felt raise was added to the sole of the right shoe to aid clearing of the prosthesis on the swing through.
3. The simulated prosthetic movement pattern was reviewed and the patient practiced single step application of these movements with the prosthesis.
4. Movement of the prosthesis by right knee flexion and backward throwing of the trunk was discouraged.
5. Patient practiced making prosthetic heel contact by falling forward on the prosthesis at the foremost point of its forward progress.
6. Patient practiced the ambulation pattern while holding with both hands to an overhead trolley bar. This encouraged the correct movement pattern, discouraged the substitute movements, aided good walking posture, and provided a graduation toward independent ambulation.

After the patient developed consistency in his gait pattern, he walked in parallel bars using only the right hand for support. As balance and stability improved, he was graduated to the use of a single cane outside of the bars. After three days of postprosthetic training, the patient was independently ambulatory with a cane. His gait pattern was good and there was no evidence of insecurity.

The remaining sessions of gait training were devoted to developing walking rhythm by perfecting step timing and step length and to increasing walking endurance. On discharge, the patient had stabilized his gait at sixty-five twenty inch steps per minute. He had worn his prosthesis up to six hours daily and had performed continuous ambulation for distances up to one-half mile without signs or complaints of undue exertion or discomfort. He walked well without a cane for short distances.

It should be mentioned that the gait characteristic, which was the premature use of the ball of the right foot while taking a step with the prosthesis, was reduced but not eliminated. Since

there could be no movement at the prosthetic hip joint, and since the patient was discouraged from throwing the trunk backward and flexing the right knee, his ability to take a prosthetic step of a satisfactory length was restricted. By rising on the ball of his right foot while taking the prosthetic step, he gained additional step length.

Evaluation of the prosthesis:

The prosthesis was worn in the rough state for four weeks. During this time a prosthesis can be evaluated and changes can be made easily, quickly, and economically. Throughout the post-prosthetic program, the weight bearing surfaces appeared unaffected by the wearing of the prosthesis. There was mild skin irritation where the crest of the socket rubbed against the trunk. Temporary padding to this area was later replaced by a permanent cushion of foam rubber. In order to make it easier for the patient to clear the floor when taking a prosthetic step, the prosthesis was reduced to a height three-fourths of an inch shorter than the normal leg. No other changes were necessary before having the limb finished.

Training in the basic skills and safeguards associated with the wearing of a prosthesis:

Additional functional training involved the learning of such skills as attaching and removing his own prosthesis, ascending and descending stairs, retrieving objects from the floor, getting on and off the floor, and walking on various types of surfaces. The patient experienced no difficulty in mastering these skills. In dressing, he fitted the trousers over both legs and then stood against a support to attach his prosthesis. By placing the normal leg foremost and by flexing forward, the patient could touch the floor. From this position, he could pick up an object or lower himself to the floor. He ascended stairs by consecutively mounting a step with the normal leg and then bringing the prosthetic leg up beside it. In descending stairs, the prosthesis first was placed on the lower step and then the normal leg was quickly brought down beside it. He required no supportive aid in this performance.

As a safeguard against injury to himself or his prosthesis in case of sudden impact, the patient practiced recovery of balance when pushed from various angles. On failing to recover balance, he could control his fall to the mat.

Figure 5. Side view of prosthesis.

CONCLUSION

A report of the program followed in the physical rehabilitation of a single case of a hemipelvectomy amputee has been given. An attempt has been made to clearly present the problems encountered, the means taken, and the methods used in resolving those problems. The rehabilitation objectives for the patient were stated. The degree of success with which he achieved those objectives is indicative of what might be accomplished by people with hindquarter amputations.

This hemipelvectomy amputee was successfully fitted with a prosthesis and developed a high level of functional use with that prosthesis. Although the approach to each given case of a disability is

individual, there are procedures common to all such cases. The program of training followed in this case may be of value as a guide in the rehabilitation of other hemipelvectomy amputees.

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A Cerebral Palsy Mobile Unit

Martha J. Norris, B.S.

Although the first Cerebral Palsy Mobile Unit established by the California Elks Association has been in operation only since August, 1951, and the second since April, 1952, the state-wide program of which these are part was launched nearly two years ago. At a meeting of this Association in September, 1950, the decision was reached to adopt as a major project that of providing for the needs of the cerebral palsied children of California. A Major Project Committee was appointed and, with the advice and assistance of members of the California Society for Crippled Children, the State Department of Public Health, the California Department of Education, and the Northern California Chapter of the American Physical Therapy Association, studied the problem and outlined a plan of procedure. It was a comprehensive plan, and the results were extensive. During the summer of 1951, the California Elks Association awarded twenty-four scholarships to teachers of cerebral palsied children for summer school training in their special field of education. The Association is currently financing a program of autopsy research on the brains of cerebral palsied persons, conducted by Dr. H. W. Magoun at the University of California, Los Angeles, Medical School. During the past school year, fifteen scholarships were awarded for the training of physical therapists in California at physical therapy schools approved by the Council on Medical Education and Hospitals of the American Medical Association.*

California's Humbolt and Del Norte Counties lie north of San Francisco, the southern boundary being about 90 miles distant and the northern about 390. These two most northwestern counties are part of the great "Redwood Empire," where the flourishing lumber industry attracts an ever expanding population. Although only a few cases of cerebral palsy had been diagnosed in these two counties by the summer of 1951, the size of the population indicated that an estimated fifty cases were probably scattered over this widespread area. Such limited facilities as existed frequently were not available to these children because of transportation difficulties. In order to meet this problem, the Major Project Committee established the first Cerebral Palsy Mobile Units. An occupational therapist and a physical therapist were provided with Pontiac station wagons and allowed to equip them with what each considered essential for carrying out a home therapy program.

The program is conducted under the medical supervision of an orthopedist appointed by the Humbolt-Del Norte County Department of Public Health. Cerebral palsy clinics are scheduled at monthly intervals by the Crippled Children's Services of the Department of Public Health, and held at the county hospital. At these clinics, the doctor examines, diagnoses, and prescribes treatment for the new cases, and reexamines children already under treatment. When indicated, children are referred to other clinic services, or occasionally to the Cerebral Palsy Diagnostic Center of the University of California Hospital, for consultation or for more extensive examination. Each of the therapists is supplied with copies of all clinic reports. Brace makers from

Physical therapist, Cerebral Palsy Mobile Unit of the California Elks Association.

*Report of the Major Project Committee, California Elks Association, September, 1951; Horace R. Wisely, Chairman.

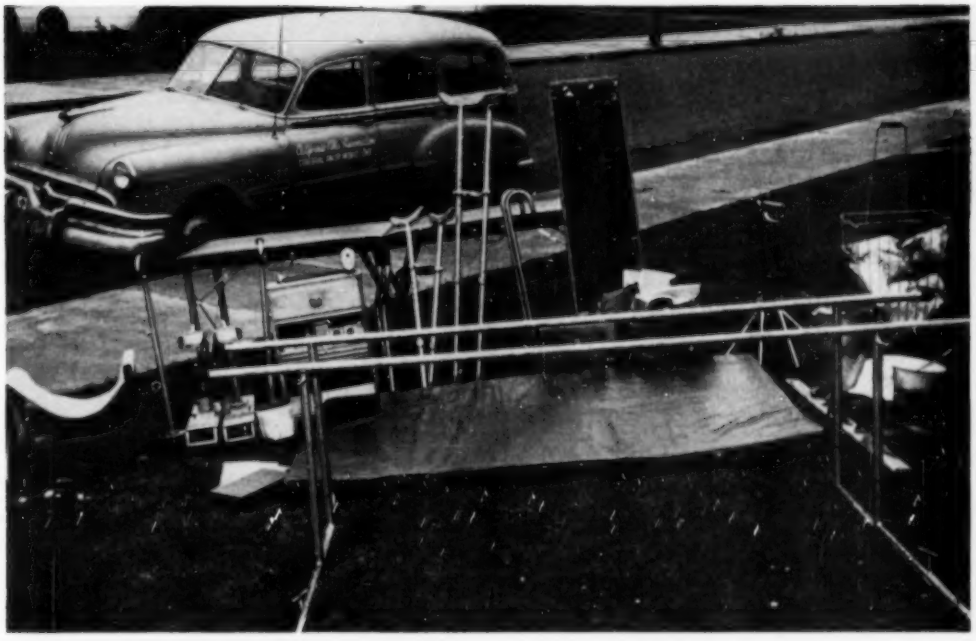

Figure 1. Physical therapy mobile unit equipment.

San Francisco or Fresno attend the clinics when it is known that brace measurements or fittings will be required.

Headquarters for the operation of the Mobile Units is Eureka, California. Here, in the office of the County Health Department, the two therapists have desk and storage space for office equipment and records. Dr. Myron Husband, County Health Officer, and his staff have extended to the therapists all facilities and privileges available to employees of the Health Department. Mail is received there and telephone messages taken. Frequent consultations with the Director of Crippled Children's Services and the Director of Nursing contribute toward an orderly and effective administration of the program.

As a rule, appointments for home visits are made between the therapist and parent at the child's first visit to the clinic. Several factors which are taken into consideration include the location of the child's home, the therapist's schedule of visits to other homes in that area, the family's meal hours, and the child's school and rest hours. Visits are made at weekly or biweekly intervals, depending upon the needs of the child and upon the travel time involved. The length of a visit is determined more or less by the degree of involvement, although it is rarely less than an hour. The parent always knows how to get in touch with the therapist between visits if difficulties arise, and they often do. When practicable, additional visits are made to deal with these new situations.

Although the program is essentially a parent training program, the therapist usually gives the treatment at first in order to determine the exact needs of the child. When a program has been outlined, the parent is given detailed instruction and demonstration. If songs are to be used with conditioned exercises for the younger children, the parent is provided with an instruction song booklet and music score. The training of the parent in physical therapy procedures is carried out in much the same way as that of a physical therapy student during clinical training. Observation and correction form the basis of the early visits. Eventually, a mother may become more successful than the therapist in conducting the treatment program for her child. She keeps tolerance and achievement records when they are required. Older children are encouraged to assume some of this responsibility when feasible. In general, the home physical therapy program is similar to that of a treatment clinic program.

It includes generalized assistive exercises, voluntary relaxation practice, specific muscle training, the stretching of contractures, all stages of balance work, gait training, and the various mat activities, such as rolling, crawling, kneeling, and falling. Supervision of the use and care of night and day braces is an important responsibility for both parent and therapist. With a little help, the parent can usually cope with such items as twisters and abductor pants.

The following equipment is carried in the physical therapist's station wagon at all times except when some item is loaned to a patient for a limited period:

1 foam rubber mat, 4′ x 6′, with vinyl plastic cover. (This is equipped with a carrier composed of a wooden bar and heavy webbing straps.)
1 door mirror, 14″ x 48″. (Having no frame, it is transported within the folded mat.)
1 Pakatable:—a folding examining table with padded leatherette covering which unfolds to 72″ x 24″ x 27″ dimensions.
1 set of collapsible parallel bars, made according to directions in the *Physical Therapy Review*, August 1951.
1 pair of Acme skiis with all attachments.
1 Kuhnen crawler with knee pads.
2 pairs of Adjusto crutches (1 adult size and 1 junior size).
1 pair of Adjusto Telescopic forearm crutches (Canadian type).
1 pair of Kuhnen adjustable aluminum canes.
1 pair of Everest and Jennings 4-point cane gliders (wheels replaced by crutch tips).
10 pairs of sandbags, miscellaneous sizes. (These are utilized during transit for stabilizing any articles that tend to rattle.)
1 portable metal filing case for current records.
1 clip board.
1 collapsible wire basket on wheels, for carrying sandbags into the homes. (In transit, the basket holds a shopping bag containing white felt, sponge rubber, elastic and nonelastic webbing, dental dam rubber, plastic material, and leather pieces.)
1 small wooden cabinet with pencil sharpener attached.
Contents of the cabinet: Brace bending irons, bandage scissors, cast knife, goniometer, percussion hammer, adjustable wrench, Phillips screwdriver set, steel tape measure, stop watch, shoelace tipper and tips, shoe horn, awl, webbing buckles, crutch armpads, crutch tips, can of machine oil, duco cement, ace bandages, band-aids, sterile gauze flats and bandage, absorbent cotton, adhesive tape, adhesa-foam, talcum powder, alcohol, scotch tape, and pencils.
1 set of footboards, varying from ⅛″ to ¾″ in thickness.
1 can of lollipops.
1 two-gallon water jug.
1 wash basin and dipper.
1 case containing soap and towel.

The back seat of the station wagon was removed, thus permitting three entrances to the equipment section. A local carpenter incorporated wooden racks and braces where needed to hold equipment in place. Articles are arranged so that each is easily accessible and removable through one or another of the three doors. No item is too heavy or too bulky for the therapist to carry.

With thirty-two children currently on the program, it is obvious that one such set of equipment would not suffice the needs of the group. Articles are used to determine and demonstrate a child's individual need rather than for use permanently. When a decision has been reached as to what the child should have, steps are taken to procure it. Often a parent or other relative can make the needed article. By using the station wagon equipment as models, or with the help of scale drawings and directions, relatives have constructed parallel bars, stabilizers, sawhorse crutches, standing tables, posture chairs, and skiis. A floor mat and crawler are the next projects. When equipment cannot be made at home, it is purchased or made locally. The local Crippled Children's Society or Elks Lodges have supplied individually needed articles such as cane gliders, football helmets, floor mats, posture chairs, full length mirrors, and typewriters. Sometimes, one family will pass on to another outgrown or discarded equipment. Home conditions must be carefully considered before any articles of size can be recommended. A two-year-old boy in Del Norte County, now using a standing table, posture chair, parallel bars and crawler, lives with his parents in a trailer. An investigation of the trailer camp and some adjustments were necessary before these articles could be installed.

The two therapists confer frequently about the progress of the children; in most cases they visit the same homes. An effort is made to schedule occupational therapy and physical therapy at evenly spaced intervals, so that fairly constant contact with the family is maintained. When visiting homes without telephones, the therapists often act as messengers for each other, and sometimes must substitute for each other in minor emergencies. Each is thoroughly familiar with the other's treatment program for every child. Both therapists find themselves involved in many of the child's problems not connected with either therapy. Speech training is a recurrent example. This great need will soon be met by a third Mobile Unit for Speech Therapy.

The extensive utilization of parents as therapists has introduced some interesting sidelights into the treatment routine. Parents of a severely involved nine-year-old spastic quadriplegic, who

Figure 2. Equipment packed in station wagon for travel.

are farmers, are looking for a small gentle horse for their son, in the hope that this will solve the double purpose of providing transportation and stretching adductor contractures. Several mothers of younger children have enlivened the treatment period with novel and amusing game routines. Once they understand what factors are significant, parents often demonstrate keen and intelligent observation, and their findings may be very helpful to the therapist. Parents and their neighbors are quick to recognize symptoms in neighborhood children similar to those of their own child or of another child they have seen in clinic. Aware of the value of early diagnosis and treatment, they are anxious to have other parents take advantage of the program.

In November, 1951, a Cerebral Palsy Parents' Group was organized. The members meet at monthly intervals to study the problems of the cerebral palsied child and to exchange ideas from their own experience. At first the group was sponsored by the local Crippled Children's Society and Parent Teachers Association. Later, a Parent Planning Committee was appointed, which has since directed the activities of the group. Visiting speakers have discussed the subjects of the Medical Aspects of Cerebral Palsy, Physical Therapy, Occupational Therapy, Nutrition, Speech, and Special Education. Movies are provided by the California Society for Crippled Children. At the May meeting a film strip was shown dealing with the Easter Seal Camp at Santa Cruz, to which eight children on the program are being sent this summer by the local Crippled Children's Societies.

The current project of the Parents' Group is that of conferring with, and assisting, where possible, the superintendents of the city and county schools in plans for the formation of a special class for cerebral palsied children. All those who work with the cerebral palsied are aware of the special education problems of the brain injured child — the distractibility, excitability, impairment of visual or auditory perception, emotional instability, delayed response, personality or disciplinary problems — in addition to the physical handicap. During the 1951-52 school year, thirteen children on the program were enrolled in county or city schools; two had home teachers. Teachers of these children have, upon occasion,

shown interest in discussing with the therapists the individual problems which arise in their classes. They have welcomed suggestions about reading matter dealing with the mental processes of the brain injured child. At a Clinic conducted recently by the Bureau of Mental Hygiene of the State Department of Public Health, five cerebral palsied children and their parents were interviewed and in some cases, the school teachers were included. It was the final recommendation of the Clinic team of specialists that all five children should attend a special cerebral palsy class. It has been estimated that about twenty children currently on the program will be eligible for such a class next fall.

Although the success of the home treatment program has been gratifying in most cases, there are many disadvantages. Conditions are less controlled than in a clinic. The treatment period is subject to all the usual household interruptions and distractions. Improvised equipment is not always entirely satisfactory. The child misses the stimulation and incentive afforded by competition with other children. Occasionally a parent cannot be trained satisfactorily, or lacks rapport with her child. A fourteen year old athetoid boy reacted to his new, full-control braces with such a display of hysterical tantrums that it was necessary to admit him to the hospital for treatment. By working with the child in this controlled atmosphere, the physical therapist was able to accomplish what could not have been achieved in the home. Three weeks of working with both child and parent were necessary before a rational approach to the problem was reached within the family, and future cooperation assured.

In general, however, the advantages balance, if not outweigh disadvantages. The therapist works with the parent in the situation in which future treatments will be given, dealing with each obstacle as it arises. The therapist soon becomes familiar with the routine of the family life, the inter-relationship of its members, and the effect of all this upon the personality and behaviour of the cerebral palsied child. The home visit atmosphere is conducive to freedom in conversation. The attitude of the mother toward the therapist is that of a family friend with whom she shares all problems concerning her child. This attitude may enable her to express fears or resentments hitherto concealed, doubts about her child's intellectual development, fear of prospective surgery, apprehension concerning future pregnancies, resentment of an uncooperative attitude on the part of the father. Sometimes the therapist is able to make helpful suggestions, sometimes not; often, a sympathetic ear is all that is needed. Where the mother is overprotective, overcritical, overindulgent, or overdemanding, the therapist can sometimes, by slow degrees, influence her in developing a wiser relationship with her child. A parent's sense of inadequacy may be the keynote of maladjustment to the problem; as soon as she feels secure in her ability to handle the situation, she takes pride in her efficiency and in her child's accomplishments. This pride leaves little room for defeatism or the "why did this have to happen to me?" attitude.

The communities in which these Mobile Units operate have shown themselves interested and helpful. Local women's groups have volunteered their services for making equipment such as sandbags, beanbags, button boards, and dressing practice dolls. Social activity among the children was stimulated by a Christmas party sponsored by the local Elks Lodge, an event which constituted the first such experience for many of the children. The general public is becoming aware that the problem of cerebral palsy is one part of the community health picture, and has shown a desire to cooperate in its solution.

The ultimate objective of the Mobile Units is to assist in the establishment of permanent community facilities for the care of the cerebral palsied children in the area. Steps which have been taken toward this objective during the past year include a demonstration of the effectiveness of treatment procedures, community education concerning the problems of cerebral palsy, the focusing of attention toward the existence of undiagnosed cases in the community, organization of parents of cerebral palsied children, and stimulation of interest among local educators in meeting the problems of the education of cerebral palsied children. The final goal of the Mobile Units will have been reached when the community establishes a cerebral palsy school, complete with fully equipped therapy rooms, and supplied with physical, occupational, and speech therapists; when transportation has been provided for all children within commuting range, and boarding homes have been provided for those outside it; when vocational training is available to all children who might become self-supporting; and when the community has learned to appreciate the contribution which cerebral palsied persons are capable of making to society.

Appreciation is expressed to Dr. Paul Grigorieff, Medical Director of the Humbolt-Del Norte County Cerebral Palsy Program, and to Mrs. Katherine Connell, Occupational Therapist with the Cerebral Palsy Mobile Unit, for criticism and suggestion regarding this article.

*Home Exercise Devices**

Elizabeth A. Smith

The purpose of this article is to pass on to other physical therapists some of the home exercise devices which have been constructed by a multiple sclerosis patient. It is hoped that the physical therapists, in turn, may be able to stimulate the imagination, interest and energy of other patients, who could benefit by exercising at home, to construct for themselves devices suitable for their particular disabilities. Home devices need not be perfect or polished. Many of them will appear to be too complicated, some may need to be improved, and others may be crudely finished, but the important factor is that they serve the purpose for which they were intended. Probably no two persons, if left to their imaginations, would build a piece of equipment the same way. It should be emphasized in this regard that the equipment may be built in many ways, from a variety of materials, and to suit the space where it is to be used. Therefore, the home devices described in this article are intended merely as guides for other patients who may wish to build their own equipment.

Perhaps it would be of interest to present a brief clinical picture of the patient who, with the aid of a neighbor, constructed the home devices shown in these photographs. He is a 33-year-old white male with a diagnosis of multiple sclerosis. The onset of the disease was in 1944, manifested by gradual weakness and incoordination of both upper and lower extremities, followed by a progression and remission of symptoms. In 1950, the patient had great difficulty in walking and used a wheel chair much of the time. Since then he has gradually progressed to Canadian crutches or two canes, depending upon his destination and his sense of balance. Since 1948, the patient has worked full time at his occupation. During vacation periods, he returns to the hospital for check-ups and receives physical therapy.

Chief Physical Therapist, Regional Office, Veterans Administration, Huntington, West Virginia.

*Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of her own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

Since September of 1950, he has received physical therapy at the Veterans Administration Regional Office four days a week and swims under supervision, in a local pool one day a week. In addition to his full-time job and his visits to the physical therapy clinic and swimming pool, the patient spends approximately one and a half hours each day exercising at home.

Arm Pulleys (Figure 1.)

One of the first exercise devices the patient set up at home was a pair of arm pulleys. This was done to develop muscle strength of the upper back, chest, and arms. Two small pulleys were fastened to a basement rafter by means of screw hooks. A piece of clothesline was threaded through each pulley. Window sash weights were fastened to one end of the rope for resistance, and the handles and bails from two five-gallon paint buckets were tied to the other end to form the pulley handles.

The following items were used in setting up the arm pulleys:

1 50-foot bolt clothesline	$ .79
2 small pulleys	.30
2 screw hooks	.20
4 5-pound sash weights—50 cents each	2.00
2 handles and bails from used 5-gallon paint buckets	
Total	$3.29

Stretching Bar (Figure 2.)

To maintain flexibility of the trunk, trunk bending exercises were indicated; however, the patient needed something to hold on to while doing these exercises. For this purpose he devised a stretching bar. It was later suggested to him that this device could be used for stabilization while stretching the gastrocnemius and also while exercising the thigh in flexion, extension, abduction, and adduction.

A mounting board was secured to the wall at the desired height by two anchor bolts. A mount-

Figure 1. Arm Pulleys.

ing flange was fastened at either end of the mounting board, the distance between them depending upon the length of the ½-inch pipe. To each mounting flange was fastened a 4-inch pipe nipple. Each end of a 2½-foot, ½-inch pipe was inserted into a pipe elbow and this, in turn, joined to the pipe nipples to complete the stretching bar.

The following items were used in the construction of the stretching bar:

1 mounting board — 2" x 4" x 36"	$ .25
2 anchor bolts	.20
2 mounting flanges	.50
1 length ½-inch pipe, 2½ feet long	.50
2 4-inch pipe nipples	.30
2 pipe elbows	.40
Total	$2.15

Hamstring Pulleys (Figure 2.)

Because of weakness of the hamstrings of the right leg, the patient was urged to arrange some way to exercise this muscle group against resistance. The hamstring pulley was his answer. A small pulley was fastened to the mounting board of the stretching bar by means of an eye hook. A piece of clothesline was threaded through the pulley and a 1-gallon paint pail filled with sand was tied to one end of the rope. Window sashes were used for additional weight. A man's belt was strapped around the patient's foot and ankle in a figure eight and the other end of the rope attached to this. A plank, resting on two wooden saw horses, served as a bench for the patient.

Figure 2. Stretching Bar.

There has been definite improvement in the strength of the hamstrings since the patient has been exercising on these pulleys.

The following items were used in setting up the hamstring pulleys:

1 gallon paint pail filled with sand	$ ..
5-pound sash weights (used on arm pulleys)	.
1 small pulley	.15
8 feet clothesline	.
1 man's belt — 1½ inches wide (used)	1.50
Total	$1.65

Bicycle (Figure 3.)

The frame on which the bicycle was mounted was made from six lengths of 2" x 4" 's. Two of the lengths — 25 inches long — were placed parallel to each other with a space between wide enough to hold the bicycle stand which was attached to the rear wheel. Two additional lengths — one 24 inches long and the other 46 inches long — were also placed parallel to each other with a slight space between to form the platform for the front wheel. The 46-inch board was placed on the outside for stabilization. These two sets of crosspieces were connected on either side by a 2" x 4" 54 inches long. (See Figure 3.)

The front wheel was stabilized basically by

Figure 3. Bicycle.

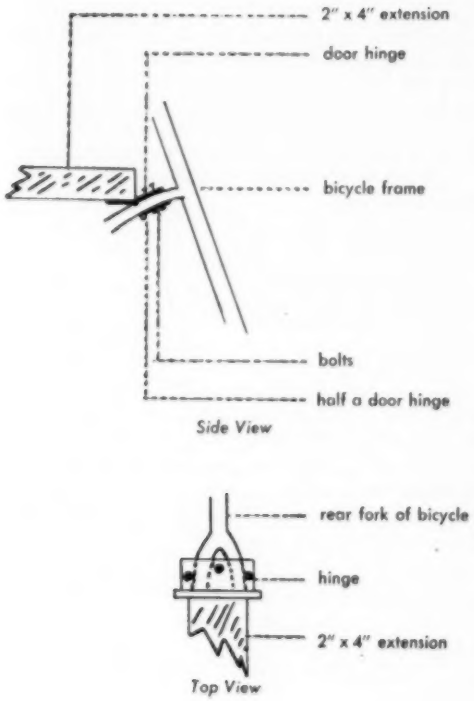

Figure 4. Side view of hinge attachment fastening T-shaped extension to rear fork of bicycle frame.

bolting the rim to the 25-inch long 2" x 4" crosspiece. For additional stabilization, a heavy gauge galvanized wire (with turnbuckle inserted) was extended, on either side, from below the handlebars to the outer end of the 46-inch crosspiece, where it was fastened to an eyebolt.

The rear wheel was stabilized by a bicycle stand which rested between the two rear crosspieces. A handlebar basket brace, extending on each side from the hub of the rear wheel to the outer border of the mounting frame, was used for lateral stability.

Resistance was obtained by a wringer roller mounted on a T-shaped extension over the rear wheel. Weight was applied to the distal end of the extension for added resistance. The extension was fastened to the bicycle frame at the upper end of the rear fork by one door hinge and a half a door hinge bolted together. (See Figure 4.) For added resistance, a 5-gallon pail of sand was suspended from the distal end of the extension by an S-shaped wire hook inserted into an eye screw.

The following items were used in the construction of the bicycle:

1 girl's used bicycle	$5.00
Frame (used 2" x 4" pieces)	1.50
2 54-inch pieces	
3 25-inch pieces	
1 46-inch piece (front)	
2 40-inch lengths heavy gauge galvanized wire	.20
2 eyebolts, small	.20
2 turnbuckles	.20

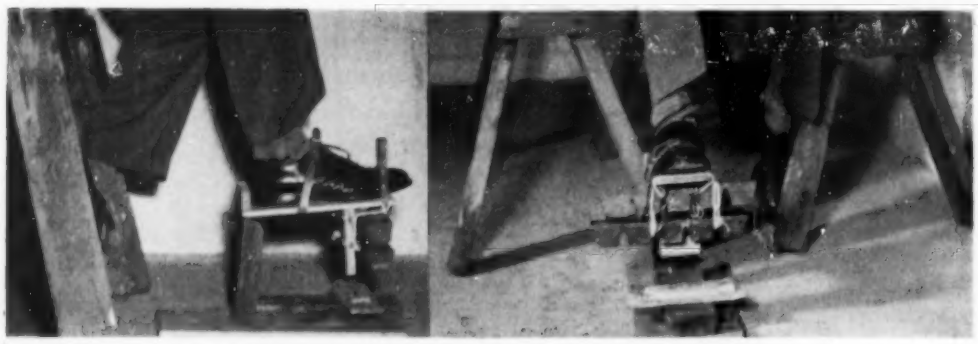

Figure 5. Ankle Exerciser. Side view. Figure 6. Front view.

1 used bicycle stand	.75
1 used handlebar basket brace (rear wheel stabilization)	.50
Carriage for resistance:	
2 pieces 2" x 4": 1 28-inches, 1 20-inches	.50
2 large eyebolts	.50
1 wringer roller	
1 used door hinge and 1 half door hinge	.65
Total	$10.00

Ankle Exerciser (Figures 5 and 6.)

It was pointed out to the patient that the dorsal flexors of his right foot were weak and that additional exercises for this group of muscles should be done at home. The patient responded to this suggestion by building an ankle exerciser patterned after those he had used in hospital clinics. He made this device chiefly of box wood scraps and two short pieces of 2" x 4" 's. The 2" x 4" 's were nailed together at right angles and mounted on a longer and wider piece of box wood for stability. One side of a small door hinge was fastened to the free end of the upright 2" x 4" which previously had been sawed off at a 45-degree angle. The other side of the hinge was fastened to the under side of a piece of box wood about the length and width of the patient's foot to make the foot rest. On the upper side of this foot rest, just over the hinge, a small piece of wood was nailed to form a heel rest. A longer piece of box wood was nailed to the under side of the foot rest, slightly forward, to serve as a "stop" for the front part of the device. Lead bars, used for weights, were attached to the front of the exerciser, under the foot rest board, by metal hooks and clothesline. One leather strap was fastened near the center and another near the front of the foot rest board. Since the patient has been using this device, there has been considerable improvement in the strength of the dorsal flexors.

The following items were used in building the ankle exerciser:

1 small door hinge	$ .15
Lumber: box wood scraps and 2" x 4" 's	.50
2 small mounting straps	1.00
2 11-pound bars — plumbing lead at 20 cents per pound	4.40
Total	$6.05

In cases where exercise at home is indicated, it is hoped that the above information may guide the patient who desires to construct his own exercising devices. These devices need not be perfect, expensive or require great space. They can be built with a little imagination, a few dollars and the helping hand of a neighbor.

We wish to express our appreciation to Dr. Carl Leiden for the photographs in this article.

Your Patients Will Help You Recruit.

Index to Current Literature

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Enter the A.P.T.A. Poster Contest.

Editorials

How did you read the article in the December 1952 REVIEW entitled, "Are We Participators in, or Spectators at our Annual Conference?" We suggest that you read it again in light of its content of some of the fundamental and basic principles of our profession. Apply these observations to yourself and evaluate your contributions to your profession.

We should like to suggest also that you project these thoughts to a consideration of the importance of this same member participation at the local and chapter level. If it is agreed, as we are sure it is, that there is an effective result created by such participation once a year, how much more will be accomplished if this is multiplied both in area and time through the many meetings which are held throughout the country. Furthermore, such participation will result in a two-fold advantage since it will benefit both the member and the Association.

Through the process of using local meetings as a small scale device for member participation one distinct result will be evident. Many members who may feel inadequate to take part in a national program can explore their own capacities with a smaller and more familiar group. Many who started just this way have developed into national leaders. Such contributions from persons of ability with constructive ideas provide a great total educational potential which otherwise would be untapped.

Of equal importance is the fact that the more each chapter presents in the way of scientific papers, research programs, educational talks, and clinical demonstrations the more material there will be available for selection on a national scale. There is undoubtedly a vast reservoir of pertinent information throughout the country which, for many reasons, never gets beyond the locality in which it is being used. This material should be available to all for the development of our profession.

Earlier we used the phrase "local and chapter" in order to indicate the advisability of reaching groups other than our own profession. While it is true that physical therapists have a deeper interest in learning of the work of fellow members, it must not be forgotten that we have a responsibility to disseminate our information to others who can use it. This includes not only technical and clinical material but also information relative to our status in the medical team. Each member should be aware of his responsibility to accept every opportunity to be a participant when requested and furthermore should seek out such chances to speak as are available in each community.

We should not, in fact cannot, rely solely on others to provide us with our information for in this way we hamper growth and prevent development. Our profession has come of age and our duties are those of maturity and responsibility.

IN THIS ISSUE of the *Review* you will read about a "Poster Contest" which is part of our accelerated recruitment campaign. Here is an opportunity to have a part in recruitment and a chance to profit financially as well as professionally. Read the rules and play the game. Play the game by sending in your own entries and also by enlisting your more artistic friends to do so. You will note that the contest is open to everyone, but that a Chapter may also profit from the winning entry. We are convinced that physical therapists have one of the most outstanding records of accepting responsibility. In all instances our efforts have been without benefit of paid public relations experts. We know that we can count on you to make recruitment succeed. Let's have entries from every Chapter and District.

Contest for Recruitment Poster

In recognition of the mounting need for physical therapists, the Executive Committee has authorized a much expanded recruitment campaign. This is based on the excellent record of cooperation in recruitment already shown by members, chapters and schools and is planned to provide more tools for your use. The first of several projects in this connection will be to provide a poster which will be available in large numbers to chapters. Be sure to read the report of the semiannual Executive Committee meeting for other plans.

Purpose of the Contest

To select an attractive poster design with a catchy slogan that can be used throughout the United States to help fill 1,000 places in physical therapy schools for September 1953. The poster should not contain too much information—just enough to get across "Physical Therapy," "Need," "Where additional information can be obtained." The slogan should be short but meaningful, one that will stick in everyone's mind and be as well known as "The Pause that Refreshes," or "Join the Navy and See the World."

Eligibility

Any interested person. Chapters are expected and encouraged to submit as many entries as possible. If you have no talent along this line within your chapter, interest your friends. Be sure they understand the purpose and the type of poster we hope to have developed.

Prizes

$75.00 to the person designing the winning poster. $25.00 to the Chapter submitting the winning poster or the District of the Chapter submitting the winning poster.

Instructions

Size of the poster 11" by 14". Any type white paper except news strip. Use ink, not pencil. If using color, these four may be used: Yellow, Red, Blue and Black. Leave space for photograph wherever it is to appear. Enclose photograph in cellophane holder.

Deadline for Entries

March 1, 1953.

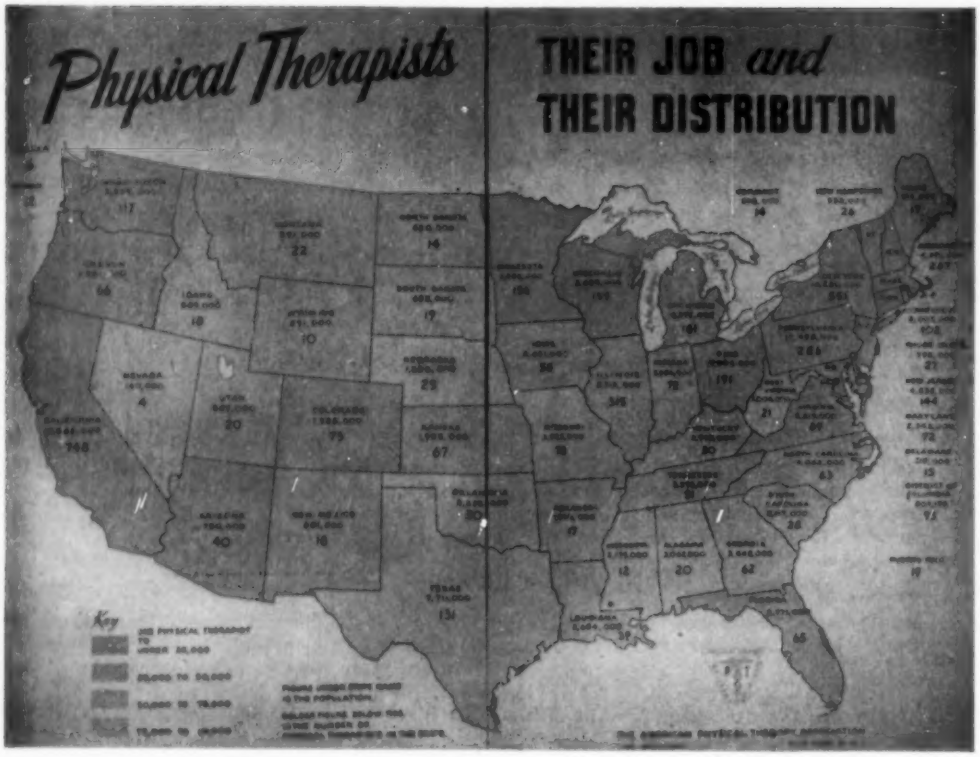
Judges

To be announced.

All Entries should be sent to

Poster Contest
American Physical Therapy Association
1790 Broadway
New York 19, New York

We Must Supply the Demand for More Physical Therapists.



Middle panel of three frames which chapters may borrow from the National Office to use as exhibit background. The two side panels depict treatment situations. All are in color. Shipping weight is 75 pounds, and return express must be paid by the chapter.

MEET OUR NEW CONTRIBUTORS

(continued from page 9)

Jonathan E. Rhoads, M.D., Professor of Surgery and Surgical Research, School of Medicine, University of Pennsylvania, attended Haverford College where he was graduated in 1928 with a B.A. degree. In 1932 he received his M.D. from John Hopkins University, and later was awarded a D.Sc. (med.) from the University of Pennsylvania.

Dr. Rhoads is Professor of Surgery, Graduate School of Medicine, University of Pennsylvania; Chief, Surgical Division II, Hospital of the University of Pennsylvania; Assistant Director, Harrison Department of Surgical Research, University of Pennsylvania; and Senior Surgeon, Children's Hospital of Philadelphia, Pennsylvania.

Elizabeth A. Smith, Chief Physical Therapist, Regional Office, Veterans Administration, Huntington, West Virginia, was graduated from State College of Washington in 1937 and for two years was Instructor, Health and Physical Education, in the the high school at Marcus, Washington.

Mrs. Smith received her physical therapy training at Walter Reed General Hospital, where she was granted a certificate in 1940. While in the service, she was physical therapist at the Army-Navy General Hospital, Hot Springs, Arkansas; Chief Physical Therapist at La Garde General Hospital, New Orleans; and overseas, was Chief Physical Therapist at the 21st General Hospital.

Prior to accepting her present position, Mrs. Smith was Assistant Chief Physical Therapist at the Veterans Hospital in Dayton, Ohio. She is a member of the American Physcial Therapy Association and the American Registry of Physical Therapists.

Your Chapter Could Use the Poster Contest Prize.

Association Activities

Association Standing and Special Committees

Education

Lorraine Lake	St. Louis, Missouri—Chairman
Edith Vail	Greensboro, North Carolina
Frances Ekstam	Indianapolis, Indiana

Exhibits

Hazel Stephens	Warm Springs, Ga.—Ch'rman
Mildred Wood	Fort Belvoir, Virginia
Deborah Kinsman	Nashville, Tennessee

Nominations

Louise Bailey	Chicago, Ill.—Chairman
Dorothy Baethke	Philadelphia, Pennsylvania
Beatrice Schulz	St. Louis, Missouri
Ellen Smith	St. Petersburg, Florida
Maxine Schuldt	San Francisco, California

Program

Dorothy Graves	Los Angeles, Cal.—Chairman
Marian Williams	Palo Alto, California
Mary Nesbitt	Boston, Massachusetts
Ruby Decker	Galveston, Texas—One year

Research Section

Sara Jane Houtz	Chicago, Illinois
Elizabeth Wood	Chicago, Illinois
Dorothy Graves	Los Angeles, California

Publication

Jane Carlin	Philadelphia, Pa.—Editor
Sara Jane Houtz	Chicago, Illinois
Beatrice Whitcomb	San Antonio, Texas
Mary E. Kolb	Pittsburgh, Pennsylvania

Public Laws

Alice Chesrown	St. Paul, Minn.—Chairman
Carolyn Bowen	Seattle, Washington
Ruth Guerin	Philadelphia, Pennsylvania

Relations

Clara Arrington	Washington, D.C.—Chairman
Priscilla Chandler	Amherst, Massachusetts
Sarah Johnson	Kensington, Connecticut

Finance

Margaret Kohli	Madison, Wis.—Chairman
R. Lewis Brown	Pittsburgh, Pennsylvania
Shirley Cogland	Boston, Massachusetts

Retirement

Dorothy Baethke	Philadelphia, Pa.—Chairman
Catherine Worthingham	New York, New York
Mary Nesbitt	Boston, Massachusetts

Ways and Means

Dorothy Fredrickson	Nashville, Tenn.—Chairman
Louise Bailey	Chicago, Illinois
Gladdes Neff	Long Beach, California

National Health Council Delegates

Mildred Elson	New York, New York
Elizabeth Addoms	New York, New York
Mary Nesbitt	Boston, Massachusetts

Registry Board of the American Registry of Physical Therapists

Margaret Moore	Chapel Hill, North Carolina
Elizabeth Wood	Chicago, Illinois

Advisory Board to the American Registry of Physical Therapists

Florence Linduff	Washington, D.C.

Advisory Committee to Educational Consultant

Elizabeth Addoms	New York, New York
Lucille Daniels	Palo Alto, California
Lorraine Lake	St. Louis, Missouri
Mary E. Kolb	Pittsburgh, Pennsylvania

School Section

Mary E. Kolb	Pittsburgh, Pennsylvania
Lucille Daniels	Palo Alto, California
Dorothy Wagner	Chicago, Illinois

Revision of Essentials

Dorothy Baethke	Philadelphia, Pa.—Chairman
Margaret Kohli	Madison, Wisconsin
Helen Kaiser	Durham, North Carolina
Charlotte Anderson	Los Angeles, California
F. J. Kottke, M.D.	Minneapolis, Minnesota
Jessie Wright, M.D.	Pittsburgh, Pennsylvania

Ex Officio

Catherine Worthingham	New York, New York
Mary E. Kolb	Pittsburgh, Pennsylvania
Dorothy Hewitt	New York, New York
Aura Severinghaus, Ph.D.	New York, New York

Curriculum Guide

Margaret Moore	Chapel Hill, North Carolina—Chairman
Shirley Cogland	Boston, Massachusetts
Charlotte Anderson	Los Angeles, California
Margaret Kohli	Madison, Wisconsin
Gertrude Beard	Evanston, Illinois
Donald Rose, M.D.	Kansas City, Kansas

Research Section

In 1948 the program committee of the 25th annual conference of the American Physical Therapy Association set aside several hours for the specific purpose of fostering voluntary member participation by presentation of original studies. This was the first attempt at the establishment of a Research Section. At that time the logical group around which to build this section seemed

to be physical therapists concerned with the preparation of a thesis in partial fulfillment of the requirement for an M.S. degree.

In the five-year interim following the establishment of the research section there has been a significant increase in the number of physical therapists seeking advanced degrees. This upward trend is indicated in the compilation of theses and research titles prepared by Wagner and Semans and published in the April issue of the 1952 *Review*. Although two schools of the group answering the questionnaire do not require a thesis for the M.S. degree, all provide some experience in the preparation and writing of original studies. Of the 90 theses listed, 79 have been written since 1947. Four of these were for the doctorate degree.

It is reasonable to assume that a considerable number of the persons who have had the advantage of graduate study are now leaders in the field of physical therapy education or clinical supervision. Some are consultants in physical therapy to private or public welfare agencies. A few are engaged primarily in research. By virtue of their varied contacts each of these physical therapists has an opportunity to assume leadership in the development within his individual sphere of influence for the programs of the association. Thus will our scientific section grow in membership participation, improve in subject content and interest, and become an increasingly developmental educational experience during the annual conference. Such a program was the one envisioned by the association in 1948.

New Policy Regarding Chapter Directory

On recommendation of the Editorial Board of the *Review*, it has been decided to limit publication of the Chapter Directory to twice annually. Therefore the Chapter Directory, listing the names and addresses of both chapter and district presidents and secretaries, will be published in the *Review* only in March and September. This will be noted on the cover of the *Review* for ready reference.

A new form of listing Approved Schools of Physical Therapy and Reprints Available will also be started in the February issue of the *Review*.

Meet Your Advisory Council

Charles U. Letourneau, M.D.

Charles U. Letourneau, M.D., is Secretary of the Council on Professional Practice of the American Hospital Association. The Executive Committee was particularly anxious to have the field of hospital administration represented on our Advisory Council. The Committee was exceedingly gratified, therefore, to have Dr. Letourneau's acceptance.

In addition to his present position, all of Dr. Letourneau's education, experience, and interests seem to signally qualify him to provide valuable contributions to our Association's development. He holds the rare distinction of being qualified in medicine, hospital administration, and law. His degrees include B.A. (cum laude) from Loyola and M.D., C.M., B.C.L., from McGill University.

Dr. Letourneau, who is a native of Montreal, served in the Royal Canadian Army Medical Corps for seven years during World War II and was discharged with the rank of colonel. From 1946 to 1950, he was Superintendent of Queen Mary Veterans Hospital, where he was also a member of the Advisory Council of the Canadian Association of Occupational Therapy and on the Medical Advisory Board of the Canadian Arthritis and Rheumatism Society.

Among his numerous publications are two of particular interest to our profession: a pamphlet published in Montreal by the Rehabilitation Society for Cripples entitled, "Rehabilitating the Handicapped, 1951" and an article in *Canadian Hospital* for October 1949, "Ancillary Services."

Dr. Letourneau is married and has two children.

CONFERENCE ★ 1953

BAKER HOTEL

Dallas, Texas • June 14-20, 1953

Big "D" in '53!

It's Round-Up Time in Texas! Time to round up all P.T.'s and to steer them into Dallas come June '53 for the National A.P.T.A. Jamboree.

For your information: Our corral is to be none other than the Southwest's Big "D" — Dallas, the youngest, most cosmopolitan of America's big cities. This corral is not an empty one — it's filled with facilities to cater to the tastes of everyone, whether they be cultural, educational, athletic, fashionable, vocational, or "conventional."

For your convenience: Our covered wagon is located in the center of this corral and is labeled The Baker Hotel — a wagon large enough to provide sleeping bags for all who enter, large enough to act as a chuck wagon, and large enough to supply additional space for swapping of tales and learning of new adventures to take in the fields of our organization.

For your comfort: Come prepared for western atmosphere, a warm sun, friendly folk, and a step toward progress in our chosen field.

For your entertainment: No corral is complete

Downtown Dallas

without a dude ranch nearby, and ours is no exception. Activities after sundown will include horseback riding, a rodeo, chuck wagon dinner, and square dancing.

To provide fiesta, the state fair midway is rolling year-round, summer musicals and plays are always on the menu, and ice breakers in the wagon bring new friends into the fold and make closer those old friends.

After the round-up is over, and the separation of the herd begins, each participant is desirous of looking his best to return to old stomping grounds. To give you an opportunity to go back with the newest of gear, the famed Neiman-Marcus models will show you the fashions.

But let's not talk of leaving — we want you to stay and see all of the range outside the corral that Texas has to brag about!

Won't *you* join our Round-up in June?

Chapter News

New California Chapter

The Executive Committee voted to approve the request of members to form a new chapter of the American Physical Therapy Association to be named the Central Valley California Chapter. A charter will be issued to the new chapter as soon as bylaws have been approved.

Southern California

The Executive Board of the Southern California Chapter has invited student members from the three approved schools in its area to appoint a representative to the Executive Board.

A finance committee has been appointed to study the financial condition of the chapter and to make suggestions regarding ways of meeting chapter financial demands.

Northern California

The Sacramento District of the Northern California Chapter has been organized recently and has held successful monthly meetings.

A first aid course is being given to chapter members by the city and county civil defense organization.

New York Chapter — Greater New York District

The public relations committee recently sent several spot announcements to two of the local radio stations requesting that they be used on the air. These are being used, and inquiries from prospective students have already been received in the National Office.

Membership News

Marriages

Frances Stearns of Boston, Mass., now Mrs. Frances S. Kennett, Denver, Colo.
Ann L. Park of Pontiac, Mich., now Mrs. Ann L. Fleckenstein, Pontiac, Mich.
Regina Crawford of Charlotte, N.C., now Mrs. Regina C. Whitehead, Charlotte, N.C.
Sally Wilhoit of Durham, N.C., now Mrs. Sally W. McBryde, Durham, N.C.
Betty Messenger of Durham, N.C., now Mrs. Betty M. Byrd, Durham, N.C.
Doris Novack of Garfield, N.J., now Mrs. Doris N. Miller, Garfield, N.J.
Billie Bob Hart of Fort Worth, Texas, now Mrs. Billie H. Stuart, Fort Worth, Texas
Miriam Portnoy of New York, N.Y., now Mrs. Miriam P. Selman, New York, N.Y.
Norma J. Bell of Cincinnati, Ohio, now Mrs. Norma B. Schwendeman, Cincinnati, Ohio
Wilma M. Martin of Columbia, Mo., now Mrs. Wilma M. Blackshaw, Columbia, Mo.
Miriam Rodholm of Hines, Ill., now Mrs. Miriam R. Showalter, Chicago, Ill.
Mae J. Nelson of Trenton, N.J., now Mrs. Mae N. Buckner, Mullica Hill, N.J.
Myrna Hathcock of Ft. Benning, Ga., now Capt. Myrna H. Kerce, Ft. Benning, Ga.
Rosemary Scarich of Berkeley, Calif., now Mrs. Rosemary S. Seck, Berkeley, Calif.
Naomi Silverstein of New York, N.Y., now Mrs. Naomi S. Hofkosh, New York, N.Y.
Phyllis Abromson of Brookline, Mass., now Mrs. Phyllis A. Koch, Alexandria, Va.

School News

The Medical College of Virginia

Dr. Herbert W. Park has recently been appointed Chairman of the Department of Physical Medicine and Rehabilitation, Medical Director of the School of Physical Therapy, and Director of the Baruch Center of Physical Medicine. He received his medical degree from Duke University in 1945 and was granted a Baruch Fellowship in physical medicine at the Harvard University School of Medicine and Massachusetts General Hospital for the years 1946 to1949. Since termination of the Fellowship, he has served as Chief of the Physical Medicine and Rehabilitation Service at the Veterans Administration Hospital in Fort Thomas, Kentucky and later as Medical Director at the Woodrow Wilson Rehabilitation Center in Fishersville, Virginia. Dr. Park re-

places Dr. F. A. Hellebrandt, who is now Chairman of the Department of Physical Medicine and Rehabilitation at the University of Illinois.

Dr. Walter Jerome Lee and Dr. Rachel F. Weems have left the Medical College of Virginia. Dr. Lee is now affiliated with the Acuff Clinic in Knoxville, Tennessee, and Dr. Weems is organizing a Department of Physical Medicine at the Rockingham Memorial Hospital in Harrisonburg, Virginia.

Susanne Hirt, Technical Director of the School of Physical Therapy, has been promoted and is now Associate Professor of Applied Anatomy.

Ruth M. Latimer, who completed her requirements for a master's degree at the Medical College of Virginia this June, has accepted the position of Assistant Technical Director and Assistant Professor of Physical Therapy at the School of Physical Therapy.

California Elks Scholarship Program

The Major Project Committee of the California Elks Association began a physical therapy scholarship program a little over a year ago to help alleviate the shortage of personnel in California and particularly in cerebral palsy treatment centers. This program was made possible by assessing each Elk member in the state organization one dollar, thus creating a fund of $100,000.00. This is to be an annual assessment.

Plans were made to award 20 physical therapy scholarships annually. This year the cost for these scholarships is $18,061.00.

We salute Mr. Horace Wisely, chairman, the members of the committee, and the California Elks for their foresightedness and practical approach to assure a full and worthy treatment program for cerebral palsy patients in California. In his annual report, Mr. Wisely expressed the committee's appreciation to Miss Lucille Daniels, Mrs. Margery Wagner and Miss Dorothy Hewitt for the advice and assistance in establishing this program.

In addition to the physical therapy scholarship program, the Major Project Committee has established mobile treatment units, a medical research project, occupational therapy and special teacher scholarships.

New Student Members

Boston University

Rae M. Gordon — L. Joyce Kadis
Hazel Tarrant

Bouve-Boston School

Marian Haas — Elizabeth J. Koski
Lydia R. Jacob — Beverly J. Mitchell
Joan C. Tangen

Children's Hospital Society

Riley B. Bingham — Marilyn J. Lister
Clifton B. Call — Richard B. Pilmer
Cecille J. Cottave — Sydelle Rovner
Howard M. Fisher — Dorothy M. Taylor
Joyce M. Harris — Annette Tessier
Shirley J. Keys — Geraldine V. Walroth
Joan L. Krueger — Mary Ellen Weber

Cleveland Clinic

Kathleen M. Cain — Gwendolyn A. Roberts
Ann C. Donahoe — Ruth Irene Schwerha
Juanita Ann Hanger — Mariwyn J. Somers
Sotoi Kenmotsu — Roger A. Sutherland
Sarah Anne Lamade — Richard J. Worrall
William A. Porto — June Zakutansky

Columbia University

Eleanor R. Berlinghoff — Barbara Ann Koronkiewicz
Katharine B. Jaeger — Thomas F. Ryder
Joy Knight — Eleanor J. Welsh
Robert J. Whaley

Hermann Hospital

Robert L. Benson — John A. Madden
Donna L. Burgi — Ishuan R. McCutcheon
Morris E. Davis — Betty L. Moore
Dorothy Elkins — Titus J. Muzi
William A. Freedman — Robert E. Ricks
John D. Hardy — Mary E. Romaine
Marjorie L. Jackson — Shirley Shepard
Ralph F. Washburn

Mayo Clinic

Patricia A. Bodurtha — Donald H. Lange
Margaret J. Cook — Audrey F. Liddle
Florence C. Cunningham — Annie T. Lile
Ralph E. Cushman — Phyllis J. Meeker
Joyce A. Hixon — Lloyd T. Ohmer
Hessell H.Hudson — James C. Powell
Janet M. Huntley — Betty J. Rebennack
Kyoko Ishiyama — June Reddish
Stanford E. Jones — Betty B. Schendel
Kenneth L. Koch — A. Gilda Sella
Marjorie Koester — Kenneth D. Strong
James A. LaChappelle — Harry D. Tharp

Medical College of Virginia

Leonard A. Austin — Ruby Laster
Millard Lee Berman — Hannah L. Lavern
Beverly A. Booz — Jacqueline Maiden
Alice A. Bredehoft — Lena B. McGana
Richard G. Bruno — Elaine Moore
Blanche F. Coates — Lois B. Parsons
Dean P. Currier — Bette A. Plink
Katherine P. Daniels — Philip N. Pulizzi
Doris Davis — Robert H. Reedy
Salvatore E. DiFede, Jr. — Richard A. Rogers
Christine K. Erickson — Arleigh C. Sawyer
Frederick C. Evans — Walter E. Scheyett
Peggy Ann Feimster — William J. Schmidt
Jack N. Forrest — Harold K. Schoonover
Rosa B. Gonzalez — Wayne W. Schwartzwalder
John B. Henick, Jr. — JoAnne B. Seiter
Jackson E. Jeffrey — Betty Shearin
Betty R. Landon — Nancy E. Sickels

Josepy Taylor
Carolyn D. Welcker
Robert Lee West
Lawrence E. Wheeler
Barbara Winkler
William J. Zoltowicz, Jr.

New York University

John Allis
Abraham Askins
Melvin Bader
Vincent J. Barbato
James Eric Bayne
Seymour W. Behrman
Burton Bornstein
Joseph Brdlik
Richard E. Cerino
Benita Cirulis
Kevin A. Cody
Martin Cohen
Norvelle Curry
Charles A. Dorando
Marjorie Gibson
Irving Grass
Lester Gruen
Lisclotte Caroline Hanf
J. C. Hanf
Louise A. Hart
Barbara L. Hill
Belmont Jabin
Ira Jacobs
Ora Jacobson
Herbert J. Jacobus
Richard Arthur Jessum
Marvin Kaplan
Roger Roy Kelling
Theodore M. Keys
Frances Khauber
James Killeen
Phyllis Kraut
Kathryn Mansfield
Nathan Melniker
Dorothy Theodora Mitchell
Donald Marvin Moss
Robert H. Normand
Arthur George Pappas
Clarence N. Patterson
Loretta Rabiner
Barbara Rappaport
Vincent George Rhoden
Myron Rubin
Donald A. Satterlee
Walter S. Sekiya
Beverly F. Seymour
Lawrence Sidel
Bernard Simon
Robert Sims
Joseph Baum Smolens
George J. Vagias
Peter Zervalis

Northwestern University

Alaine J. Brown
Marian Campbell
Verna A. Fisher
Beth Frandsen
Myra Garhart
Carla Joan Leone
Doris Anne Miller
Rita T. Nessinger
Dorothy Pinkston
Martha Jean Price
Sharon Sander
Janet Shaw
Doris E. Hill Wade
Jean Marie Wilson
Georgia Wolf
Lois Woodward

St. Louis University

Louella C. Brow

University of California

Barbara Anne Barnhart
Jean E. Calhoon
Dollie Carmin Carston
Janice Marie Freitas
Dorothy Ann Klaus
Elizabeth L. Ludemann
Herbert E. Mishima
Sun W. Ng
Shirley Ann Schneider
Walter J. Schuetrum
Ellanor Porter Shanklin

University of Colorado

Beverly I. Andrews
James R. Clinkingbeard
Roberta Lorraine Gustad
Verdeen Hanson
Woodford E. Hatton
Paul G. Hughes
Manley C. Kiefer
Barbara Ann Leahy
Joe Oliver Luckman
Mary Lynn Perkins
Lillian Mae Peth
Margaret J. Robenstein
Robert R. Robins
Margaret Claire Weber

University of Kansas

James M. Carey
Nancy Ann Carey
Julia Ann Carothers
William J. Dunn
Eugene M. Loehr
Mary Lou Mitchell
Suzanne J. Roop
Walter W. Thompson
Joan Woody

University of Minnesota

Eugene Joseph Connolly
Celia Ann Cowger
Nancy Lou Hagen
Lucile Marie Johnson
Marguerite Adele Karpan
Bess Kotonias
Loren L. Longmore
Joan Marilyn Lothberg
Sarah S. O'Brien
Jo Anne Beverly Ostlund
Rudolph Anthony Ptak
Barbara Palmquist Reed
Ruth Rondeau
James L. Schilling
Richard W. Sexe
Bette J. Spaeth
Barbara Mae Strom
Mary Ann Udovich
Corrine Darlene Wulkan

University of Pennsylvania

Anna Louise Barnhart
Daniel Richard Evans
Patricia Fearnside
Amanda E. Hopkins
Jose A. Jiminez
Elizabeth Anne Jones
William Joseph King
Mary Lewis
Jean Wade Low
Marjorie C. Moore
H. Stewart Morris
Barbara Adelaide Mueller
Ann Morton Nourse
A. Dean Paisley
John Raymond Rumney
John A. Sippel, Jr.
Gwen Spangenberg
Alphonse M. Stepanavage
Barbara Fay Thurman
Marion Louise Townsend

University of Southern California

William Brodie
Eleni Diamandidou
Wade Eckert
Frank W. Guthridge
Dorothy F. Hopkins
Alyce Kahn
Robert I. Kaplan
Marjorie Kehl
Rebecca W. Lide
Esther M. Lyon
David H. Morris

University of Wisconsin

Audrey J. Alter
Suzanne Baker
Dolores G. Bolan
Maryann Coldwell
Jeanne H. Gebert
Joyce M. Jackels
Doreen L. Marshall
Barbara J. McCall
Barbara Ann Meyer
Gilbert R. Reynolds
Betty R. Riviers
John P. Scott
Virginia T. Van Bree

Washington University

John C. Jorgensen

Brooke Army Medical Center

Lt. Marjorie A. Ball
Lt. Edith Conant
Lt. Barbara D. Gray
Lt. Margaret E. Horchler
Lt. Nelle M. Humphreys
Lt. Eleanor R. Johnson
Lt. Patricia C. Joyce
Lt. Phyllis L. Kraft
Lt. Norrine E. Mack
Lt. Rosemarie A. Maiorielle
Lt. Sheila McDonnell
Lt. Hope E. Quinn
Lt. June E. Tucker
Lt. Dorothy Weller
Lt. Michiko Yamasaki

600 Students Enrolled This Fall — 1,000 Next Year!

Courses in Upper-Extremity Prosthetics at U.C.L.A.

The University of California at Los Angeles is offering a series of ten six-week sessions in upper extremity prosthetics. These short-unit courses are designed to assist prosthetists, physical therapists, occupational therapists and physicians to develop a better understanding of the principles and practice involved in utilizing the newest engineering development in upper extremities prosthetics services in the rehabilitation of arm amputees.

The program is sponsored jointly by the Department of Engineering and the School of Medicine of the University in cooperation with the Advisory Committee on Artificial Limbs of the National Research Council, the Orthopedic Appliance and Limb Manufacturers Association, the Veterans Administration, and the Department of Defense.

The educational program for prosthetists extends over the full six weeks' period. The program for physical and occupational therapists will be offered during the last three weeks of every six weeks' session for a total of 120 hours. Approximately 90 hours will be spent in laboratory practice, working with amputees fitted with prostheses. The other 30 hours will be spent in joint discussion with physicians and prosthetists.

In additional to the Educational Director, Miles H. Anderson, M.D., a full-time teaching staff will be maintained in residence and will include Mr. Hyman Jampol, physical therapist. Visiting instructors in special fields will be brought in from time to time.

The courses are designed for those already actively engaged in the rehabilitation of amputees and is not intended as a substitute for long-term, well-rounded professional training.

Students are being accepted for the courses on a regional basis for better coordination of services and the first section for physical therapists from New York, Newark, and Boston starts on February 2, 1953. Following that, enrollment will be as follows: March 23—Dallas, San Antonio, New Orleans; May 11—Philadelphia, Pittsburgh, Washington, D.C.; June 29—Detroit, Cleveland, Buffalo; September 21—St. Louis, Kansas City, Cincinnati; November 9—Seattle, Portland, San Francisco; January 25, 1954—St. Paul, Minneapolis, Des Moines; March 15, 1954—Louisville, Nashville, Atlanta; May 3, 1954—Denver, Salt Lake City; June 21, 1954—San Diego, Los Angeles, Honolulu.

The enrollment fee for physical therapists and occupational therapists is $100.00. Applications and further information may be had by writing the University of California, Engineering Extension, Los Angeles 24, California.

Work Conferences on Polio Nursing Scheduled for Six Regions

The Nursing Advisory Services for Orthopedics and Poliomyelitis of the National League for Nursing have announced plans to participate in a series of twelve work conferences on the nursing care of poliomyelitis patients. These conferences, which will be held throughout the country, will begin in February and continue during March and April.

The purpose of the conferences is to help nurses who are responsible for nursing services, administration of polio units, home care programs, and representatives of nursing education to incorporate the newer methods and trends in their total programs of nursing in the home, hospital, or school.

Attendance during the entire conference will be limited to key personnel in hospitals, schools of nursing and public health agencies. However, the last two days of each conference will be open to directors of nursing services and directors of nursing education programs not present during the early part of the conference and to hospital administrators so that the total field of nursing for patients with poliomyelitis may be carefully explored and planned.

State leagues for nursing and the universities conducting programs in nursing education in each of the regions where these conferences are to be scheduled will be invited to assume major responsibility for making the local arrangements.

Consultants representing the Department of Hospital Nursing and the Division of Nursing Education, as well as two consultants from the Nursing Advisory Services for Orthopedics and Poliomyelitis, will participate in the program, working cooperatively on common problems in polio nursing. Physical therapists in each of the areas will be asked to participate in the program.

The consultant services from the NLN will be made possible through the annual grant from the National Foundation for Infantile Paralysis for the Nursing Advisory Services for Orthopedics and Poliomyelitis. The Kellogg Foundation is helping to promote the conferences.

As plans develop further, more information will be published in the national nursing magazines.

General News

New Series of Films on Nursing Care in Poliomyelitis

A new series of films with the general title of "Nursing Care in Poliomyelitis" has been produced by the Nursing Advisory Services for Orthopedics and Poliomyelitis of the National League for Nursing through a National Foundation for Infantile Paralysis grant.

The series consists of three half-hour, 16 mm. sound films. One is on the problems and opportunities in the care of patients with low-spinal polio, one on bulbar polio, and one on high-spinal, thoracic, or respiratory polio. Each of the three films may be shown individually as a unit or in sequence with the rest of the series.

The films have been photographed by Science Pictures Inc. under the supervision of Teresa Fallon and Barbara Williams, polio nursing consultants with the National League for Nursing, and Catherine Worthingham and Matilda Smith of the Division of Professional Education of the National Foundation for Infantile Paralysis.

The series which is being distributed nationally through hospitals, nursing and medical schools, public health nursing services, and other channels may be borrowed from the Nursing Advisory Services for Orthopedics and Poliomyelitis, National League for Nursing, 2 Park Avenue, New York 16, New York.

Revised Slides to be Ready December 1

The Nursing Advisory Services for Orthopedics and Poliomyelitis of the National League for Nursing announce that their revised series of 2″ x 2″ slides on the care of the infant with clubfoot and on plaster casts will be available for sale or loan December 1, 1952.

The series, consisting of 25 black and white or Kodachrome slides, shows the difference between infants with normal and infants with clubfeet. Stressing early treatment, the slides illustrate various courses of treatment including wedge casts, retention casts, and Dennis Brown splints. They also include nursing care and parent teaching.

The series on plaster casts is in two parts. The first includes 39 Kodachrome slides that show

application, finishing, and changing of lining of various types of casts. The second series, consisting of 28 Kodachrome slides, show, in addition to some nursing procedures, how to handle wet plaster, how to support and repair casts, and how to observe the patient.

Price of each black and white slide is 50 cents; price of each Kodachrome slide is 75 cents. They may be borrowed for ten days without charge, but all persons borrowing them are asked to pay for their return transportation to New York, parcel post, insured. All slides should be ordered at least one month in advance of their showing by writing to Nursing Advisory Services for Orthopedics and Poliomyelitis, National League for Nursing, 2 Park Avenue, New York 16, N.Y.

Cerebral Palsy Academy Elects New Officers

At the last meeting of the American Academy for Cerebral Palsy, held in Durham, North Carolina, October 2 to 4, 1952, the following officers were elected:

Arnold Gesell, M.D. . . . . President
Meyer A. Perlstein, M.D. . . President-Elect
Harry E. Barnett, M.D. . Secretary-Treasurer

Abstracts

The Chronic Pulmonary Invalid After Poliomyelitis

James J. Waring, M.D., M.A.C.P. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:4:252, August 1952.

Death of the poliomyelitis patient usually is due to respiratory failure, which may result from failure of the pump, from obstruction of airway, from pulmonary edema, from atelectasis, or aspiration pneumonitis.

It is very easy for the pulmonary invalid from poliomyelitis to slip back into complacent, resigned, or despairing helplessness. As long as he resents this helplessness and is determined to rehabilitate himself, further improvement is not only possible, it is certain. The patient's attendants (nurse, family, physician) must not permit the patient to relax his efforts. Skilled and equally determined physical therapy supplies the most important stimulation to his determination.

A vital part of the program and a part perhaps too often neglected or not appreciated for the patient with both limb and respiratory disability is the effort to improve the damaged ventilatory machinery. Weakened respiratory muscles can be strengthened; diaphragmatic action can be improved surprisingly with properly designed exercise. The patient must practice coughing to help the recovery of this vital function.

The thorax must not be allowed to become "frozen." Positive pressure inflation of the lungs several times daily will help to keep the thorax flexible. This is very important, especially if the patient has learned "frog-breathing" or glossopharyngeal breathing. If the thorax still remains flexible, the patient can by voluntary effort ventilate his lungs easily by this method. If the chest has become "frozen," "frog-breathing" will be markedly restricted.

This extraordinary method of breathing, dependent upon voluntary effort and, therefore, not usable during sleep, has been learned accidentally by some patients. It has been described by Dail in California. The patients pump air into the lungs by action of tongue, mouth, cheeks, pharynx, and larynx. Strangely enough air flows down through the larynx into the lungs and little if at all into the stomach. With each gulp or "pumping" of air the glottis opens and closes again to hold the air in the chest. After the lungs have been filled to capacity, the patient voluntarily releases the glottis and by thoracic and pulmonary elasticity the lungs are emptied.

Frog-breathing not only gives adequate oxygenation, but it enables the patient to talk more loudly. Perhaps because of the sudden release of expiratory pressure, it assists in bronchial drainage; it helps to keep the thorax flexible; it enables some patients in the daytime to get along without mechanical methods of ventilation. Adequate strength and normal function of tongue, cheeks, mouth, soft palate, larynx, and pharynx are essential for this type of breathing.

Cold Injuries — Rewarming Injuries

H. Killian. In ZENTRALBLATT FUR CHIRURGIE, LEIPZIG, 77:81, 1952. Abstracted in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 149:11: 1073, July 12, 1952.

Exposure to cold of the entire body and local freezing differ in their pathophysiological aspects. Death resulting from exposure to cold is not due to cell destruction, but is rather due to failure of vital functions at a body temperature that is far above that which causes an arrest of cellular metabolism. Necrosis during local freezing, however, implies severe cellular injury. During exposure to cold great circulatory changes take place to protect the body as a whole, leading to contraction and gradual centralization of the circulation. The author explains the development of various cold injuries of the skin on the basis of a reaction of the vessels, and he concludes that there are no real cold lesions, but that all cold lesions are caused by improper rewarming. Not even freezing of tissues produces cellular damage. The critical oxygen deficiency, which in the last analysis is responsible for the tissue changes including necrosis, does not develop during exposure to cold, but during the rewarming process. He therefore demands that during early treatment the local tissue metabolism of the frozen part be kept fixed by keeping the frozen part at a temperature between 6° and 7°C. (42° to 44°F.). Warming of the frozen part without relaxation of the arterial spasm and without restoration of the capillary circulation at the demarcation zone, that is, without adequate oxygenation, produces, at temperatures above 6° to 8°C. (42° to 46°F.), that degenerative metabolism that causes the lesions usually ascribed to cold exposure. However, while the frozen peripheral parts are kept cool, warming must be started from the center of the organism, which the author accomplished by administering a fever-producing preparation of killed nonpathogenic coli bacilli. Vasodilating drugs proved inadequate to release the arterial spasm, and it is felt that interventions on the sympathetic nervous system should be reserved for late cases. Since the development of the artificial fever induced by the aforementioned preparation requires from four to six hours, heating from the center during this interval can be promoted by hot drinks, infusions, and clysters. Moderate amounts of alcohol may also promote capillarization. Administration of oxygen will aid the restoration of the tissue metabolism. The author disagrees with the investigators who demand rapid rewarming of a frozen part, pointing out that those who advocate this gained their experiences on laboratory animals that had been subjected to rapid freezing, a process totally different from that which prevails in the development of cold lesions in human subjects.

Local Shifting of Blood in the Lower Extremities

Howard L. Reese, M.D., Milton L. Cullen, M.D., and Francis D. Beyer, M.D. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 149:9:821, June 28, 1952.

Kety's method of measuring calf muscle circulation by the clearness of radioactive sodium has been used to study the shifting of blood in the lower extremity. Increased skin blood flow produced by direct heat and intravenously administered priscoline (2-benzyl-2-imidazolinehydrochloride) was followed by a reduced calf muscle circulation. Heating the body produced no change in the skin blood flow of the lower extremity and no change in calf muscle circulation. When circulation in the anterior leg muscles was increased by exercise, the circulation in the antagonistic calf muscles was reduced.

The conclusion was reached that the use of priscoline in patients with intermittent claudication and peripheral skeletal muscle disorders has no physiological basis.

Absence of Clinical Evidence of Destructive Lesions of the Sympathetic Nervous System in Acute Anterior Poliomyelitis

Lewis J. Pollock, M.D., Norman B. Dobin, M.D., Benjamin Boshes, M.D., Alex J. Arieff, M.D., Herman Chor, M.D., I. Finkelman, M.D., Meyer Brown, M.D., Irving C. Sherman, M.D., Erich Liebert, M.D., and Eli L. Tigay, M.D., Chicago. In ARCHIVES OF NEUROLOGY AND PSYCHIATRY, 67: 6:725, June 1952.

There is need for clarification of the reports upon disturbances in functions of the sympathetic nervous system in acute anterior poliomyelitis. Often coupled with reference to the work of others, and with reports of authors themselves upon pathologic changes in the intermediolateral column of cells and in the ganglia of the sympathetic chain, is a description of some change in function of the sympathetic nervous system, leading to the assumption that the dysfunction noted is related to the pathologic changes described. For the most part, evidence of such dysfunction has consisted of some one sign or symptom, such as excessive sweating, increased electrical skin resistance in the axillae, or temporary retention of urine during the acute stage.

Ninety-one patients suffering from acute anterior poliomyelitis during the fall of 1950 were examined at the Chicago Municipal Contagious Disease Hospital. The studies conducted on these patients consisted of measurement of the skin temperature, electrical skin resistance, and sweating; determination of the relative humidity of the skin by a hygrometer; oscillometry, and cold-pressor tests. In the study of skin temperatures, a significant increase in skin temperature, differences between paralyzed and unparalyzed extremities, and a skin-temperature gradient were sought. In the study of amplitude of vascular oscillations, the ratio of the amplitude of the oscillations in the leg and that of oscillations in the forearm was estimated; similarly, the ratio for paralyzed and unparalyzed extremities was determined. In respect to electrical skin resistance and sweating, the measurements on the paralyzed side were compared with those on the unparalyzed side. Finally, when any one of these methods served to indicate a dysfunction, effort was made to determine whether such a conclusion could be confirmed by the other methods of examination.

In summary, it may be said that a single indication of possible dysfunction occurred in significant numbers and was more frequently found in unparalyzed extremities. A combination of two indications was found in too few cases, and with only slightly greater frequency in paralyzed extremities, to be significant. In a very few cases a combination of three indications was found about equally in paralyzed and in unparalyzed extremities. In no case was there found a combination of all four indications of possible dysfunction of the sympathetic nervous system.

Some Psychological Factors Observed in Poliomyelitis Patients

L. McCarty Fairchild, M.D. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:4:276, August 1952.

Poliomyelitis, by the nature of the disease process and its sequelae, creates a high degree of anxiety, dependency, and hostility. Understanding and early proper management of these psychological factors prevent secondary neurotic complications and facilitate achievement of maximum rehabilitation.

From a psychological viewpoint, what is done during the early acute phase of the illness may be of crucial importance. Patients rapidly sense and secure support from a treatment regime that is efficiently organized. This regime begins in the admitting service.

Poliomyelitis strikes quickly. Public awareness of the potential damage and the knowledge that a specific cure is not available produces marked anxiety. Rapid loss of motor function also creates fear. The total situation is one in which a tremendous amount of anxiety is thrust upon the patient in a short period of time. The resulting psychological picture frequently resembles the reaction to catastrophe. Appropriate management follows recognition of this situation.

The most basic reaction to an anxiety-provoking situation is either to attack or flee the threat. Patients with poliomyelitis are not in a position to elect flight. When flight is blocked, attack is the only remaining alternative, which is merely reinforced by the loss of motor function. Therefore, in poliomyelitis the tendency toward hostile reactions is potentially great. This hostility is essentially primary to the situation created by the disease.

Whenever the number permits it, hospitalized poliomyelitis patients should be handled on a separate service. The attending staff should be more or less permanent and not rotate at short intervals, because the security derived by the patient from the staff is of great importance. This support can be achieved only if continuous contact is maintained with the same personnel. When a change or disruption in this relationship is necessary, the patient should be prepared in advance for the change. Poliomyelitis patients requiring protracted hospital care should not be scattered through a general hospital service which is organized to care for acute illnesses of relatively short duration, for the needs of chronically ill patients are different from those of acutely ill individuals.

Betaine and Glycocyamine in the Treatment of Disability Resulting from Acute Anterior Poliomyelitis

M. E. Borsook, M.D., Harvey K. Billig, M.D., and James G. Golseth, M.D. In ANNALS OF WESTERN MEDICINE AND SURGERY, 6:7:423, July 1952.

Thirty-one patients with paralysis and a constant degree of paresis resulting from acute anterior poliomyelitis were treated with glycocyamine and betaine. Twenty-six patients showed objective evidence of improvement, which was frequently of a useful degree; five patients showed no evidence of muscle improvement.

All patients demonstrated an improved sense of well-being; less fatigue and greater general strength and endurance were apparent early in the course of treatment. These effects have persisted and were apparently independent of any objective improvement in the paretic muscles. Most patients gained weight.

Whenever motor unit activity or residual power remained in a muscle or muscle group, a substantial increment of motor unit activity and muscle power occurred with betaine-glycocyamine therapy.

Conversely, in muscles exhibiting nothing but denervation fibrillation or where no residual function or motor unit activity existed, at no time during the course of therapy did any increase in activity or muscle power occur.

Of the 275 muscles with residual function, 268 clinically and all electromyographically improved.

The Value of Intermittent Venous Occlusion. Its Effect on Local Muscle Circulation as Determined by Clearance of Radioactive Sodium (Sodium 24)

E. M. McGirr, B.Sc., M.B., Ch.B., F.R.F.P.S.G., M.R.C.P. In GLASGOW MEDICAL JOURNAL, 33:3:83, March 1952.

The immediate effects of intermittent venous occlusion on the circulation have been studied both in human beings and in animals by a multitude of experimental methods. In general it has been found that during venous occlusion the blood flow is impaired; following release of the occluding pressure a transitory increased blood flow may occur, but it does not compensate for the decreased flow during the occlusion. The long term effects of intermittent venous occlusion have not been studied experimentally.

In the present investigation the immediate effects of intermittent venous occlusion on the rate of removal of sodium 24 from the gastrocnemius muscle of human subjects have been studied. The clearance rate of the sodium has been shown by Kety to be a measure of the over-all efficiency of the local circulation.

The study showed that during venous occlusion the circulation is impaired. Following release of the occluding pressure a transitory reactive hyperemia occurs. The over-all effect of intermittent venous occlusion is most frequently an impaired circulation.

The results obtained do not support the use of intermittent venous occlusion to improve the circulation of an extremity.

Prophylaxis of Scoliosis

Alvin M. Arkin, M.D. In JOURNAL OF BONE AND JOINT SURGERY, 34-A:1:47, January 1952.

Arkin states that if all functional curves were recognized and corrected, most structural curves could be prevented. The problem has been to recognize and correct the functional curves. These are commonly overlooked, especially when mild, or neglected when recognized. Even when they are actively treated, the usual methods of postural exercises and braces often are unsuccessful, partly because of the patient's lack of cooperation, partly because of defects inherent in the method. Postural exercises, though useful, are effective only at the actual moment when they are being done; the gravitational pressure is symmetrical only when the spine is actually straight. Fifteen minutes of daily physical therapy are easily outweighed by fifteen hours of slumping. Braces, if effective, are conspicuous and often uncomfortable because of pressure on the rib cage; they usually meet with marked resistance on the part of the patient.

On the other hand, shoe and buttock corrections are comfortable, inconspicuous, and readily accepted by the patient. Lateral recumbency is not particularly difficult to enforce if it is the position used for homework and television hours; perhaps it may not be essential if the curve is well corrected by the pelvic tilt. It is hoped that the ease and simplicity of this method will stimulate early recognition and adequate treatment of functional curvatures.

Peripheral and Visceral Vascular Effects of Exercise and Postprandial State in Supine Position

Milton Lowenthal, Karl Harpuder and Stanley D. Blatt. In JOURNAL OF APPLIED PHYSIOLOGY, 4:8:689, February 1952.

The changes in peripheral and visceral blood flow of normal man during activities of daily life have not been studied systematically. These activities involve a number of factors which impose strain upon the cardiovascular system. The total circulatory effect of exercise is a composite of the effects of muscle contractions, postural changes, emotional stimuli, respiratory influences, changes of environmental temperature, and postprandial vascular alterations. In this investigation single circulatory factors of physiologic importance and the results of their combination were studied.

Peripheral and visceral blood flow was measured on normal man *in the horizontal position* at rest, after exercise, after a meal, and after a meal and exercise. Measurements were taken on hand and fingers, forearm, kidney, and liver. Exercise was carried out by weight lifting with the lower extremities. Exercise alone or following a protein meal did not produce significant changes in the circulation of inactive muscle groups, of the kidney, and liver. It did increase skin flow. A heavy protein meal caused increased blood flow in the liver.

Hand Disabilities

F. L. Flack, M.D., F.A.C.S. In SOUTHERN MEDICAL JOURNAL, 45:9:784, September 1952.

The aftertreatment of hand disabilities is as important or more important than operative treatment.

Flack states that in the past he has written on a patient's chart repeatedly that continuous hot packs, hot fomentations, hot boric acid packs, should be used or changed every three hours. If they were used consistently, they resulted in a hand that was swollen, soggy, motion-limited, wrinkled, furrowed, and disabled. He has no explanation for continuing this treatment, and states that the heat from wet packs certainly does not last more than two or three minutes.

Dry heat should be used in hand cases. Gauze is applied and in many instances may be impregnated with an antiseptic lubricant. Hot fomentations should be discarded. Healing and freedom from infection are promoted by dry heat. A convenient and usually available method is the use of electric light cradles. If facilities are available, and they usually are, ultra short wave diathermy and infra-red rays are of the greatest benefit. Radiant dry heat from electric light bulbs is practically always at hand and in practice has been highly efficient.

The Effect of Electrical Stimulation on Muscular Atrophy Resulting from Acute Inanition

A. Brodish, M.S., J. D. Thomson, Ph.D., and H. M. Hines, Ph.D. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:3:153, June 1952.

A study was made of the effects of electrotherapy upon the atrophy which occurs in skeletal muscle during acute inanition. The experiments were carried out in the gastrocnemius muscles of adult rats which were fasted until they had lost thirty percent of their initial body weight. In one group the electrical stimulation was applied

during the period of fasting and in another it was applied during the period of refeeding recovery. The therapy consisted of volleys of slight supramaximal induction shocks applied daily for one minute to the gastrocnemius muscle of one limb. The contralateral unstimulated muscle served as a control.

Electrotherapy applied during a period of acute inanition caused a retardation of weight, total strength, and total creatine loss in muscle. No significant effect on the strength per unit mass and creatine concentration of treated muscle was observed. The increase in strength and creatine content was due entirely to a larger muscle mass. The same modality of electrical stimulation when applied to normal muscles and to muscles recovering from the effects of acute inanition caused a slight but significant increase in the dry weight of the treated muscle but no improvement in their strength and creatine content. Some possible mechanisms underlying the effects of electrotherapy on atrophic skeletal muscle are discussed.

Orthopedic Management, Including Bracing, in Poliomyelitis

Atha Thomas, M.D. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31: 4:272, August 1952.

Orthopedic management of poliomyelitis begins with the acute onset of the disease and extends throughout the course of treatment until maximum recovery is reached. Special attention is directed to the prevention of deformity and restoration of function.

The abnormal forces which lead to deformity are described in some detail with an outline of procedures that can be utilized to overcome such deforming forces, thus preventing, insofar as possible, many of the permanent crippling conditions that are so disabling in poliomyelitis.

Muscle reeducation and gait training are continued as long as there is evidence of improvement. A word of warning is in order about depending too rigidly upon the muscle evaluation or "muscle chart." Even though repeated tests of individual muscles fail to show any improvement over a period of time, the patient as a whole often does continue to improve as far as efficiency of gait and ability to handle himself are concerned. He accomplishes this through more efficient use of remaining muscles, by "substitution," and by a general adaptation and adjustment to his handicap. At times such adjustment is quite phenomenal and is aided by continued instruction and training.

There is always hope for improvement in infantile paralysis, and persistence, courage, and optimism often lead to results that may be surprising.

Functional Shoulder and Upper Extremity Brace-Apparatus

Robert B. Wallace, M.D. In ARCHIVES OF PHYSICAL MEDICINE, 33:9:553, September 1952.

Since patients with shoulder disabilities represent a high percentage of the cases referred to the departments of physical medicine and rehabilitation, and since a large number of these cases are ambulatory, it seems necessary to revise the usual methods of treatment. The desired goal was a brace which would give support in the most advantageous position, with gravity eliminated as much as possible, and so designed that active and passive motion in all directions could be obtained with the least possible muscular effort. The brace apparatus described in this article was developed, and it is believed that it can be gradually improved to provide the necessary requisites.

It is possible that the brace apparatus can be used with beneficial effects in a large group of shoulder disabilities where the residual disability, regardless of original etiology, is so often caused or aggravated by the gravity-position drag upon the shoulder joint structures, articular surfaces, capsules, bursae, tendons, muscles, nerves, and blood vessels. The two most important requisites are support and motion with minimum effort. These requisites must include: (1) counteraction of gravity; (2) maintenance of advantageous position; (3) facilitation of natural functional motions, with return to original position; (4) light weight, supported on the pelvis (to prevent scoliosis when used unilaterally); (5) minimal mechanical resistance to minimal muscular force; and (6) the facilitation of the use of passive swing-motion exercise.

This brace has been used for only a short period, and so far, only on poliomyelitic paralysis cases. However, it has been found to greatly accelerate functional recovery in poliomyelitic paralysis of the shoulder where the patients are not bedridden. The brace apparatus has been found beneficial in cases of flail shoulder with a functioning forearm or hand —enabling performance of good functional movements.

Orthopedic Treatment of Acute and Subacute Poliomyelitis with Curare and Stretching

V. Raisman. In NEW YORK STATE JOURNAL OF MEDICINE, 52:1089, May 1, 1952.

The aim of orthopedic treatment for poliomyelitis patients is to prevent deformities and to restore power to apparently paralyzed muscles. In the past treatment was based on the principle that if a muscle were paralyzed, its normal opponent would overpull it and thus force the involved part into an attitude of deformity. To prevent this, casts and braces were used, but unfortunately deformities would develop despite such treatment. The treatment described in this article is based on Kenny's concept that the overpulling opponent of the paralyzed muscle was not normal, but was itself in a state of spasm or tightness. Her theories aroused much controversy but also stimulated research, which confirmed, on an electromyographic basis, the presence of irritability or spasm in the acute phase of poliomyelitis in most muscles of the body. The research also demonstrated that the hot packs which Kenny advocated did not lessen the spasm. Curare came into use by some investigators to lessen the irritability and permit restoration of muscles to their normal length by stretching. Curare is injected intramuscularly three times a day and, approximately three-quarters of an hour after the two daytime injections, a physical therapist stretches all the joints of the body through an ever increasing range of movement. The patient is urged to exercise and to walk if possible, and when the orthopedic examination reveals complete relaxation, the curare is stopped but the stretchings are continued. Case reports are presented to show that with this method casts and braces are not needed. If complete relaxation can be obtained and maintained following discharge from the hospital, deformities do not develop. However, the stretching must be continued for a long time after the acute stage has ended.

Physical Medicine and Rehabilitation in Poliomyelitis

Harold Dinken, M.D. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31: 4:282, August 1952.

Despite numerous advances in our knowledge of the disease and improvements in our therapeutic approach, the basic facts relative to the epidemiology and prevention of poliomyelitis are still unknown. The problem remains one of symptomatic or expectant treatment of the residuals. Many clinical disciplines are required in the team approach to the problems of management during the acute, convalescent, and chronic phases of the disease. Physical medicine and rehabilitation are essential in this team effort. Failure to employ physical and rehabilitation agents and technics throughout the course of poliomyelitis is inconsistent with the modern concept of adequate management of the disease.

The objectives of physical medicine and rehabilitation in poliomyelitis are many and include:

(1) The evaluation of the extent of neuromuscular disability and its progress under treatment.

(2) The relief of pain and "spasm."

(3) The prevention of deformity. If this is not entirely possible, to assist in minimizing such deformity or correcting it once it has occurred.

(4) The improvement of motor function in terms of strength, endurance and coordination.

(5) Training the patient to meet the requirements of daily living with special reference to ambulation, hand, and travelling activities.

(6) Insuring the total (physical, psycho-social, educational, and vocational) rehabilitation of the patient.

The So-called Bicipital Syndrome of the Shoulder

Robert W. Newman, M.D. In ARCHIVES OF PHYSICAL MEDICINE, 33:9: 534, September 1952.

The purpose of this paper is to call attention to a clinical entity, bicipital tendinitis, bicipital tenosynovitis, or bicipital syndrome of the shoulder joint which constitutes a major factor in the production of the painful, stiff shoulder. A substantial part of the practice of most orthopedic surgeons is made up of the care and treatment of this condition. Undoubtedly it is the most common ailment of the shoulder and is of great importance not only because of its frequency of occurrence but also because of the prolonged disability it generally entails. It is infrequently seen in individuals under 40 years of age, and its course is characteristically exceedingly protracted, extending over periods of months to years, and generally terminating in spontaneous recovery.

An attempt has been made to indicate the fact that pathologic changes in the biceps tendon probably play a major role in the production of this symptom complex.

Therapeutic Teaching: Group Work in Physical Therapy

Morton Hoberman, M.D., and Erbert F. Cicenia, M.A. In ARCHIVES OF PHYSICAL MEDICINE, 33:9:539, September 1952.

Rehabilitation, especially of the severely and chronically disabled, has increased the patient load of most physical therapy programs during the past decade to such an extent that it became obvious to many of us in the field that with our present methods of therapy, the saturation point would soon be reached. In an effort to alleviate this difficulty, a number of institutions have utilized group work instead of individual treatment in certain phases of physical rehabilitation.

Therapeutic teaching may be defined as that form of physical therapy administered within a group situation in conformance with accepted pedagogical principles and fundamental concepts of rehabilitation. The lack of detailed instructional material set forth in logical, coherent sequence, has probably been the main factor in the retardation of the use of this method. One of the purposes of this paper is to furnish such detailed instructions. A second aim of this paper is to stress again the thought that the physical therapist must also be a teacher — especially in physical rehabilitation procedures. Guthrie-Smith expresses the opinion that the physical therapist must approach the patient as a teacher rather than as one who merely carries out a prescribed order of treatment. More colloquially, the successful therapist-teacher "works *with* the patient, not *on* him."

Preparing and carrying out a therapeutic teaching program on a rational basis rather than chance requires a plan for presenting an organized and progressively arranged body of functional exercises and activities. It should include a large range program or *rehabilitation syllabus*, and a daily program or *treatment plan*. The rehabilitation syllabus should represent the physical experiences which the severely disabled will encounter in daily living. The daily treatment plan is a combination of activities, selected from the syllabus of rehabilitation, in accordance with patients' present needs, interests, and abilities.

Besides administratively permitting sound therapy to relatively large case loads with limited personnel, group instruction is found to provide an "interest method" of learning functional rehabilitation skills. Through socialization with other patients and the manifestations of mild, friendly rivalry with a neighbor, bordering on emulation rather than competition, a large amount of recreational value is combined with therapeutic activities, thus increasing the patient morale. The greatest disadvantage of therapeutic teaching is the reduction of individual attention in the administration of therapy. However, in terms of the over-all physical rehabilitation program this is not so great that it outweighs the advantages.

While therapeutic teaching is emphasized as one kind of group organization which provides for individual learning, it is considered only as an adjunct method, and does not supersede individual programs.

Resistive Exercises in the Treatment of Poliomyelitis

Duane A. Schram, M.D. In ARCHIVES OF PHYSICAL MEDICINE, 33:9:549, September 1952.

It is evident that the goal in rehabilitating the post-acute poliomyelitis patient is realization of maximum residual capacity. It is equally obvious that to attain this goal there should be a well defined program leading up to actual training in functional activities. When the patient is left with definite muscular weakness, a system of exercises should be established that will gradually recover all remaining strength possible. The most efficient method known today for strengthening weakened muscles is progressive resistance exercise. This article attempts to point out the relative importance of progressive exercises throughout the treatment program of the poliomyelitis patient with residual weakness, following the acute episode.

The concept presented in this article suggests three principal phases in an exercise program for the post-acute poliomyelitis patient. Progressive resistance exercises are an integral part of this program, with minor emphasis on the early and final periods, and primary emphasis on the intervening phase.

Mechanical Aid for the Arm Amputee

Jerome Weiss, M.D., and Otto Eisert, M.D. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 149:16:1470, August 16, 1952.

Although recent developments in prosthetic devices have done much to restore the usefulness and to elevate the morale of the arm amputee, there remain two important functions that still are difficult for him. These are the opening of an ordinary can, and the removing or replacing of a bulky top from a jar. A simple device to make this chore safe and easy for the one-armed amputee or hemiplegic has been developed by the physical medicine rehabilitation service of the Brooklyn Veterans Administration Hospital. It is an adaptation of the saddler's bench, in which foot power is used to clamp the leather and hold it while it is being stitched. Many modifications in construction are possible, but the simple form of the device can be produced in three or four hours in the manual arts or occupational therapy departments of any good service of physical medicine and rehabilitation.

The amputee or hemiplegic will be able to use the holder perfectly with just brief instruction, and, with a little practice, usually can do better than an able-bodied person can do without the holder.

Educational Therapy in the Veterans Administration Rehabilitation Program

Louis B. Newman, M.E., M.D., and Irving R. Popell, M.A. In ARCHIVES OF PHYSICAL MEDICINE, 33:8:477, August 1952.

The authors describe the educational therapy program as instituted at the Veterans Administration Hospital, Hines, Illinois, as part of physical medicine and rehabilitation. Educational therapy plays an essential role in the rehabilitation of the sick and disabled veteran and functions in the hospital under the close medical guidance and supervision of the physiatrist. Purposeful educational activities motivate the patient for further rehabilitation, measure and develop his work capacity, develop his occupational skills, raise his educational level, build his self-confidence, and develop socially acceptable habits and attitudes. It also aids in overcoming social, psychologic, and emotional difficulties that exist to some degree in all disabled persons.

It is, of course, extremely important that such treatment be administered by properly qualified persons.

Restoration of Function Through Neuromuscular Reeducation in Traumatic Paraplegia

Herman Kabat, M.D., Ph.D., Vallejo, Calif. In ARCHIVES OF NEUROLOGY AND PSYCHIATRY, 67:6:737, June 1952.

Patients who have had no functional recovery for a considerable period (in some cases many years) after apparently complete traumatic paraplegia have acquired voluntary motion below the level of the spinal cord injury through intensive neuromuscular reeducation of a new type. Three cases are presented which were given intensive individual physical therapy.

These methods of neuromuscular reeducation produce maximal excitation in motor mechanisms in the central nervous system. The technics can be applied for effective neuromuscular examination, as well as for treatment.

With this method of clinical muscle testing, it was possible to demonstrate in each of these cases a residual dormant motor connection through the injured area of the spinal cord to the lower segments. No evidence of residual voluntary motion below the level of the spinal cord injury could be demonstrated in these cases by the usual methods of muscle testing. Intensive treatment has confirmed these observations as the patient gradually obtained voluntary contraction in muscles innervated by segments below the spinal cord injury which had previously been completely paralyzed.

Gradual return of sensation below the previous sensory level associated with restoration of voluntary motion has been observed in some of these cases.

Kabat discusses the clinical differentiation of complete from incomplete transection of the spinal cord, and also discusses reasons for failure of intact nerve fibers in the region of the spinal cord injury to resume function spontaneously.

Studies on Neuromuscular Dysfunction: XV—The Role of Central Facilitation in Restoration of Motor Function in Paralysis

Herman Kabat, M.D., Ph.D. In ARCHIVES OF PHYSICAL MEDICINE, 33:9:521, September 1952.

For the greatest effect in restoring power in paralyzed muscles, the goal should be maximal activation of the motor units of the affected muscles with each effort. A maximal voluntary muscular contraction is dependent on the highest possible level of excitation at synapses on the anterior horn cells, and can be achieved only through strong facilitation and summation of excitation in the central motor mechanisms.

From clinical experience and physiologic investigations on patients, the author has applied a number of practical facilitation technics which are valuable in the treatment of paralysis. These include resistance, stretch, mass movement patterns, reflexes, and reversal of antagonists.

These technics are combined for summation of facilitation. This new treatment program routinely applies mass movement patterns against resistance, and the old procedure of treatment of isolated muscles or isolated motions has largely been discarded. The usual routine of progressing gradually from passive motion, through assistive motion and free motion to resistance also has been eliminated.

A careful analysis of the physiologic mechanisms of these therapeutic facilitation technics indicates that these methods have a sound fundamental basis. The recent experiments of Gellhorn on the influence of proprioception on the functioning of the motor cortex and the older work of Sherrington, throw considerable light on these facilitation mechanisms. Gellhorn has clearly demonstrated the same facilitation effects from application of resistance, stretch and mass movement patterns on the response to electrical stimulation of the motor cortex in the monkey as we have found in voluntary motion

in patients. Gellhorn's experimental evidence that a mass movement pattern results from threshold electrical stimulation of an individual focus of the motor cortex in the monkey illustrates the fundamental nature of these patterns. Sherrington demonstrated that deafferentation renders a limb entirely and permanently incapable of voluntary motion, even though the response to electrical stimulation of the motor cortex is unimpaired.

The underlying physiologic mechanism of resistance, stretch and mass movement patterns is essentially proprioceptive. Postural and righting reflexes and related facilitation technics also are proprioceptive in nature. The facilitating effect of reversal of antagonists is due to successive induction, proprioceptive stimulation, and co-contraction.

These powerful proprioceptive facilitation mechanisms have been harnessed for the more effective treatment of paralysis.

The Effect of Ultraviolet Light on the Skin and Hemoglobin of Patients Treated with Iron

J. L. D'Silva and M. W. Partington. In ANNALS OF PHYSICAL MEDICINE, 1:2:56, April 1952.

A series of patients, referred to the Department of Physical Medicine of the London Hospital for irradiation with ultraviolet light, was divided at random into four groups, each of which was irradiated for six weeks. Groups I and II received infra-red irradiation, and Groups III and IV ultraviolet light. Groups II and IV were given Fersolate, gr. 6 three times daily in addition; the administration of iron was continued for ten weeks. Hemoglobin determinations were made on each patient at the first attendance, after the six-weeks course of irradiation, and again four weeks later.

In this group of patients referred to "ray treatment," iron given by mouth, ultraviolet light, or iron and ultraviolet light given together had no effect in increasing the blood hemoglobin concentration, although, on the average, this was only 12.6 g./100 ml. blood.

There is no evidence in this series that the skin of patients receiving iron is in any way sensitized to the action of ultraviolet light. Not only is evidence lacking from the long-term experiments, but even when iron was given intravenously no sensitization of the skin to ultraviolet light occurred.

Book Reviews . . . . .

Protective Body Mechanics in Daily Life and in Nursing. A Manual for Nurses and Their Co-workers. *By Margaret Campbell Winters, R.N., P.T.; Instructor in Nursing at Vanderbilt University School of Nursing, Nashville, Tenn.; formerly Head of Department of Physical Therapy, University of Chicago Clinic. Paper bound; price, $3.00 Pp. 150; 393 diagrammatic illustrations, by Harold Black and Clifford Johnston. W. B. Saunders Company, Philadelphia, and London, 1952.*

Many attempts have been made to integrate principles of body mechanics into educational courses for nurses. Mrs. Winters directed a three-year demonstration project on this problem on a full time basis, and has now finished a comprehensive manual. This was made possible by a grant from the National Foundation for Infantile Paralysis. Although the book was especially prepared for nurses and was written to meet their particular needs, physicians, medical students, therapists and those engaged in pertinent phases of physical education also will find it useful. It offers for reference many clear and sensible ideas for solving their problems of daily activity and patient care.

In fact, its scope is even broader than the above statement implies, for it would be quite applicable in high schools, in industry, to office workers or any groups who want to improve their physical well-being and appearance.

The manual is unusually complete in that it is divided into these sections: "Anatomy and Physiology as Related to Motor Activity," "Factors Which Influence Body Activity," and "Application of Principles of Body Mechanics to Nursing." It stresses and elaborates on basic and fundamental concepts of body mechanics and applies them to such problems as the leverage and strain on the back in lifting patients. This latter discussion is especially interesting and informative. The appendix contains two articles previously published in the American Journal of Nursing describing the demonstration study and posture silhouettes.

It is well written and profusely illustrated with line drawings made from photographs which successfully and vividly depict both "whys" and "hows." In fact, a mere book review cannot project the value of the illustrations. The language is generally specific and accurate without being academic, stilted or cluttered. The illustrations are clear and provide the basis for full understanding.

The better preparation of nurses in body mechanics and posture was the primary purpose of this manual. There is a definite need for materials in this field, and the manual would be an excellent basic textbook for such a course. It would be quite simple for anyone with a background of basic kinesiology to use it as the foundation for a course in body mechanics. There are also useful bibliographies at the end of each section which include wide and valuable references to publications in the realm of body mechanics as related to all branches of medicine.

My Fight to Conquer Multiple Sclerosis. *By Hinton D. Jonez, M.D., Director of the Multiple Sclerosis Clinic of St. Joseph Hospital, Tacoma, Washington, as told to Miriam Zeller Gross. Cloth; price $3.50. Pp. 227. Julian Messner, Inc., New York.*

The author is well qualified to discuss the practical treatment of multiple sclerosis. Over a five year period nearly 2,000 multiple sclerosis patients have been treated under his direction at the clinic at St. Joseph Hospital. Dr. Jonez and his staff have developed an effective method of treatment in the clinic, and a type of maintenance program to prevent or control exacerbations after patients return to their homes. In reporting on the work of five years Dr. Jonez finds that multiple sclerosis symptoms have been definitely arrested in one person out of every six treated. Every patient who continued treatment conscientiously and consistently for 90 days showed improvement, and symptoms were relieved if not entirely arrested. No credit is taken for original work. According to the author, the clinic has simply made practical application of the findings of research scientists.

This method is based on the allergy theory of multiple sclerosis and in-

cludes the administration of histamine, allergy testing and appropriate measures for allergy control, the use of synthetic curare to relieve spasticity and to control incontinence of bladder and bowels, physical therapy, psychotherapy and, where emotional instability is present, a combination of sex hormones.

Dr. Jonez classifies himself as a general practitioner. He is a member of the American College of Allergies and has attended graduate courses in that field. He began working with multiple sclerosis in 1946 and two years later gave up general practice to devote all his time to the multiple sclerosis clinic.

The book is written in popular style, using nontechnical language, and is evidently intended to explain the condition and its treatment to a wide circle of readers, including multiple sclerosis patients, their families, physicians, and all who deal in any way with the problems arising from the disorder. While in no sense a manual of treatment, the book shows in some detail every aspect of treatment, using many brief case histories in illustration, and at the same time outlines the history of the clinic. Complete and specific information on the administration of histamine and other medications used in the treatment is available to any physician who will write to the clinic for it. The author believes that the family physician is in the best position to note the onset of multiple sclerosis and to treat it. He states that many of the physicians who have written him for instructions on treatment have obtained results comparable to those obtained at the Tacoma clinic.

The allergy theory of multiple sclerosis is clearly and convincingly explained. The physiologic basis for the use of histamine is outlined, and the method of administering histamine diphosphate which is used at the St. Joseph clinic. Dr. Jonez emphasizes that dosage must be sufficiently large. Because histamine was considered a dangerous drug, a constant watch was kept for bad reactions and side effects but the author states that none developed, due probably to the careful technic used in administration.

Patients were admitted to the clinic only after a diagnosis of multiple sclerosis had been made by a reputable neurologist. Possibly because the author has not assumed responsibility for diagnosing the cases, there is some confusion in the section on diagnosis, and perhaps this part could have been omitted. Throughout the book it is shown repeatedly how varied the initial symptoms may be, and how often they are transient or vague.

It is of interest to note the author's statement that multiple sclerosis cripples over three times as many people as infantile paralysis. He estimates that at least 300,000 Americans are affected, most of them between the ages of 20 and 40.

In giving the history of the clinic the author shows how difficulties were overcome, including problems of housing the patients, financing the clinic, and meeting the opposition and criticism of members of the medical profession. In this discussion he repeatedly pays tribute to the Sisters of St. Francis at St. Joseph Hospital.

Physical therapists will be interested in the section on physical therapy, which Dr. Jonez considers essential in the treatment of chronic cases. It is used in conjunction with the administration of curare, and includes hot packs, progressive resistance exercises, and training in locomotion, with the use of various walking aids. Patients and their families are trained to continue the physical therapy at home. Each patient is also trained to administer histamine to himself by iontophoresis and is supplied with an inexpensive galvanic unit to use for this purpose at home whenever an exacerbation occurs. Dr. Jonez states that vigorous massage and strenuous exercise are contraindicated in multiple sclerosis, and that particular care must be used to avoid overstretching or any rough handling of tissues when the patient is receiving curare.

A section on the cost of drugs and equipment is interesting but incomplete.

The author concludes with a discussion of some of the other demyelinating diseases, and the story of the financing and building of the new St. Joseph Hospital Clinic for Demyelinating Diseases.

The book is recommended reading for all persons concerned in any way with the problem of multiple sclerosis.

Arthritis and Rheumatism—The Patient's Guide to Treatment. *By David E. Rodger, M.D., and Gwyneth Miller, M.C.S.P., C.P.A. Hard cover. Price, $2.75; Pp. 72, illus., 51. Burns and MacEachern, Toronto, Canada, 1952.*

This manual was intended primarily for the instruction and use of rheumatic patients. In the words of the authors it may be summed up as follows: "This manual was designed to tell the patient what to do and how to do it after the doctor has gone, and until he comes back again." Following this idea the manual has been divided into three parts: 1.) The Doctor's Story, 2.) The Physiotherapist's Story, 3.) The Canadian Arthritis and Rheumatism Society.

Part one: The authors, in a masterpiece of simplification, discuss the causes, symptoms and possibilities of the eight major rheumatic conditions. Each condition is treated in a straightforward manner. Useful medicines, appliances, diet, climate, and physical therapy are considered in respect to their usefulness and relative merit. The use of physical therapy as the corner stone of successful treatment is strongly emphasized.

Part two: The Physiotherapist's Story is considered by this reviewer to be an interesting and valuable refresher course for any physical therapist, but particularly for those interested in home care of rheumatics. Exercises are outlined and illustrated for clarity. The proper usages of various thermal modalities, slings, canes and crutches with necessary safeguards are intelligently covered.

Part three: This section is dedicated to the objectives, the financing and the organization of the Canadian Arthritis and Rheumatism Society.

The glossy paper and heavy black type make for easy reading. It is felt, however, that the use of this manual is limited. It could serve the patient more effectively in the hands of those trained to deal with such conditions.

The Public Health Nurse and Her Patient. *By Ruth Gilbert, R.N., Coordinator, Course for Mental Hygiene Consultants, and Assistant Professor of Nursing Education, Teachers College, Columbia University. Second edition. Cloth; price, $3.75. Pp. 348. Harvard University Press, Cambridge 38, Mass., 1951.*

"It is not easy to go slowly, to stop for thought, to be aware of our own reactions, to be willing to relate ourselves to the lives of others rather than to direct them, but increasingly we realize that this is the straight way to working relationships with the patient."

The present mental health concept is broadening to include prevention. "An attempt is being made to reach people early and help them maintain equilibrium rather than struggle to regain it."

By short case illustrations gleaned from her long experiences with public health nurses, Miss Gilbert shows how the nurse can flexibly apply a sound body of technical information to the needs of the individual, as the patient shows us in ways he may or may not realize what his needs are.

Miss Gilbert illustrates how nurses can recognize and contribute to the basic needs of individuals if they understand their own behavior. Three mechanisms by which the mind responds to the stimulus of disease are regression, fear and preoccupation with self. If the nurse recognizes and skillfully uses these mechanisms it should not be necessary for the patient to continue to use them to gain his own end following illness. It is the person's way of meeting his particular difficulty which is important. People react to difficulty according to their previous life experiences.

One cannot minimize the sufferings of parents when disabilities occur in children. Some are so serious that they cannot be met merely with encouragement and advice. One must study not only the development of handicapped children but also the development of parents' ability to accept the inevitable and make the most of any existing assets.

The chapter "Relationships with Co-workers" discusses interaction of nurses within the same agency, with other professional groups, and other agencies.

Physical therapists will find that many situations and interpretations are similar to those found in their work. Many of the suggestions made by the author for helping nurses understand their behavior and that of their patients will be helpful to the physical therapist. It is an excellent book for the orientation of physical therapists in public health.

Physical Capacities and Job Placement. *By Bert Hanman, Personnel Research, Berkeley, California. Cloth; price, $5.00. Pp. 167; 19 figures. John de Graff, Inc., New York,* 1952.

This book briefly but effectively analyzes the problems involved in placement of people with particular reference to those who may have a physical handicap. The two leading chapters are devoted to Placement Practice and to Physical Fitness. Placement is visualized as a process of initial placement and follow-up re-survey to change the position of the employee in order to most effectively utilize his skills. Physical Fitness is given a much needed critical evaluation and many current practices, which are grounded more in tradition than in good judgement, are exposed to the revealing light of intelligent cooperation between the medical department and the personnel office. It is obvious that more needs to be learned concerning preemployment physical examinations that will search out capabilities rather than the too prevalent practice of relying on examination findings to justify the denial of employment.

The rest of the book concerns itself with Disability Method, Rating Method, and Specific Method. Here the author calls on his world-wide travels to highlight important aspects of placement practices and suggests simple but workable methods which should be of considerable aid to both personnel and medical people. This book is highly recommended for all who are interested in improving methods of placement for either the "normal" or the handicapped person.

The Principles and Methods of Physical Diagnosis. Correlation of Physical Signs with Physiologic and Pathologic Changes in Disease. *By Simon S. Leopold, M.D., Associate Professor of Clinical Medicine, School of Medicine and Graduate School of Medicine, University of Pennsylvania; Director of the Teaching of Physical Diagnosis School of Medicine; Chief of the Thoracic Clinic, Hospital of the University of Pennsylvania. Cloth; price, $7.50. Pp. 430; illus. 390. W. B. Saunders Company, Philadelphia,* 1952.

The author's preface is characteristic of all of the other material contained in the book, which is most informative, detailed, and sincere. He states, "The fundamental fault with most of the available textbooks of physical diagnosis is the fact that they devote too little attention to the underlying principles, the physics of examination, and too much space to attenuated and emasculated descriptions of clinical disease entities, listing the abnormal findings that are present in each."

It is his firm belief and that of his associate for the past twenty years, Dr. Henry Hopkins, that the principles and methods of physical diagnosis should be taught by correlating physical signs with physiologic and pathologic changes in disease, a factor which has been carried throughout in his present book.

Dr. Leopold also enjoyed the collaboration of a fine group of men who have written special chapters on the examination of male genitalia, back, anus, rectum, rectosigmoid colon, breasts, and the nervous system. The musculoskeletal system and joint examinations and measurements are also discussed. These last two subjects should be of particular interest to physical therapists, medical students and all medical practitioners, who are concerned with the "Third Phase of Medical Care."

Essential diagnostic technics with methods of inspection, palpation, voluntary muscle function (with figures), and joint measurements by goniometry are part of the work accomplished by the physiatrist.

Other collaborators covered gynecological examination, psychiatric survey, orthopedics, routine data and the history. One of the fine chapters of the book is the work of S. Reid Warren, Jr., Professor of Electrical Engineering, The Moore School of Electrical Engineering, University of Pennsylvania, on Sounds from the Thorax: Acoustic Principles.

From all of this it is evident that this book goes well beyond the older pedagogic confines of physical diagnosis and might well have been titled, "The Examination of the Body."

After so many years of conscientious teaching experience, Dr. Leopold is to be congratulated for this excellent book which covers fully the physical diagnostic technics. The reviewer expresses his appreciation and appeals to all medical men and to those in the auxiliary fields not to miss this opportunity to become acquainted with Dr. Leopold's work.

The reviews here published have been prepared by the competent authorities and do not represent the opinions of the American Physical Therapy Association.

Books to be Reviewed in February

The Croonian Lectures on Muscular Movements and Remarks on Paralysis of the Movements of the Trunk in Hemiplegia.

Anatomie und Physiologie.

An Introduction to Physical Education.

The Adolescent and His World.

A Textbook for Medical Conditions for Physiotherapists.

Winning Ways with Patients. •

Our Book Reviewers for January

Carol Bankson, Physical Therapist, Municipal Hospital, Pittsburgh, Pennsylvania. Formerly, Physical Therapist, Jewish Home for the Aged, Pittsburgh.

Ben L. Boyton, M.D., Professor of Physical Medicine and Rehabilitation, Baylor University College of Medicine, Houston, Texas.

Mary Lou Brazonis, Consultant in Physical Therapy, Geneva Community Hospital, Geneva, Illinois, and the Delnor Hospital, St. Charles, Illinois.

Louise Hayward, Consultant Public Health Nurse, Physical Therapy, Bureau of Medical Rehabilitation, State of New York Department of Health, Albany.

Donald Kamholtz, formerly Physical Therapist, Department of Physical Medicine, Woodrow Wilson Rehabilitation Center, Fishersville, Virginia. Now located in Salamanca, New York.

Constantine G. Psaki, M.D., Chief Physical Medicine and Rehabilitation, Veterans Administration Regional Office, Philadelphia, Pennsylvania.

Classified WANT-ADS

OPENING, for PHYSICAL THERAPISTS in 140-bed convalescent center. Patients range from infancy to 21 years and include polios, paraplegias, amputees, a limited number of C. P.s, and general orthopedic cases. New department, excellent facilities, good working conditions. Write: Administrator, Mary Free Bed Guild Convalescent Home, 920 Cherry Street, SE, Grand Rapids 6, Michigan.

PHYSICAL THERAPIST for 275-bed general hospital. Work primarily with polio patients. Good starting salary. Permanent. Sacred Heart General Hospital, Eugene, Oregon.

PHYSICAL THERAPIST WANTED for 50-bed hospital. Good salary, paid vacation, sick leave and holidays. Forty-hour week. Write: Charles Hesse, Coordinator, East Unit, Sparrow Hospital, Lansing, Mich.

PHYSICAL THERAPIST WANTED for Cerebral Palsy Clinic, 1831 West Wisconsin Avenue, Milwaukee, Wisconsin. No previous experience necessary. We will train you if you are interested. Write for details to Raymond C. Waisman, M.D., Medical Director.

PHYSICAL THERAPISTS: In hospital-school for rehabilitation of children with orthopedic handicaps. Complete interesting program. Good salary, merit increases, 11 paid holidays; 2 weeks' annual paid vacation. Sick leave accumulates 1 day per month to 60 days. Retirement plan after 1st year. Write Director of Physical Therapy, Illinois Children's Hospital-School, 2551 N. Clark, Chicago 14, Ill.

PHYSICAL THERAPIST, qualified only. Post polio cases and generaly therapy in 80-bed hospital. Apply Administrator, Mt. San Rafael Hospital, Trinidad, Colorado.

WANTED: Qualified physical therapist. Depending upon experience, personnel policies include 40-44 hour week, two to four weeks vacation, 13 days sick leave, 8 paid holidays. Salary dependent on experience. Department medically supervised by American Board Physiatrist. Write Charles V. Wynne, Supt., Waterbury Hospital, Waterbury, Connecticut.

WANTED: TWO QUALIFIED PHYSICAL THERAPISTS to work in established department in 500-bed hospital. Work is supervised by specialist in physical medicine and rehabilitation. Good starting salary, vacation, sick leave and retirement benefits. Write: Herman J. Bearzy, M.D., Director of Physical Medicine and Rehabilitation. Miami Valley Hospital, Dayton, Ohio.

WANTED: Qualified PHYSICAL THERAPIST for general hospital with poliomyelitis service. Attractive salary and working conditions. Address replies to Box 12, care of the Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

WANTED: Physical therapist, female, to join staff of seven, private office and hospital clinics, well equipped, all types of cases, good salary, good working conditions. Supervised by Diplomate American Board of Physical Medicine. Write H. L. Rudolph, M.D., 400 N. 5th St., Reading, Pa.

RATES

The rate per insertion is 75c per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

ALL WANT-ADS MUST BE PAID FOR IN ADVANCE. Make checks or money orders payable to the American Physical Therapy Association.

IMPORTANT

It is understood and agreed that the publisher shall have the right to reject or change the wording of any advertisement which in the opinion of the Editorial Board shall not be in agreement with the ethical standing of this publication.

Reprinted from THE PHYSICAL THERAPY REVIEW, Vol. 33, No. 1, January 1953

Schools of Physical Therapy

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS
OF THE AMERICAN MEDICAL ASSOCIATION

Graduates of these schools are eligible for membership in the American Physical Therapy Association.

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
CALIFORNIA					
[1] **Childrens Hospital Society,** Los Angeles (in affiliation with University of California, Los Angeles)	Samuel S. Mathews, M.D. Mary J. Dodge	a^3-b^3-d-e g^4	14 mo 4 yrs	Sept	Certificate Degree
[1] **College of Medical Evangelists,** Loma Linda	F. B. Moor, M.D. R. Wm. Berdan	a-b-c-d-e g	15 mo 4 yrs	Sept	Certificate Degree
[1] **Univ. of So. California,** Los Angeles	Charles L. Lowman, M.D. Charlotte W. Anderson	a-b-d-e g^4	14 mo 4 yrs	Sept Sept-Feb	Certificate Degree & Cert.
[1] **Univ. of California Medical School,** San Francisco	Lucile M. Eising, M.D. Margery Wagner	d-e g	12 mo 4 yrs	Sept-Feb	Certificate Degree
[1] **Stanford Univ.,** Palo Alto	Wm. Northway, M.D. Lucille Daniels	a-d-e-f g^4	12 mo 4 yrs	Jan-June or Sept	Certificate Degree
COLORADO					
[1] **Univ. of Colorado Medical Center,** Denver	Harold Dinken, M.D. Dorothy Hoag	a^3-b-d-e g^4	12 mo 4 yrs	Sept	Certificate Degree
ILLINOIS					
Northwestern Univ. Medical School, Chicago	Emil D. W. Hauser, M.D. Elizabeth C. Wood	a-b^3-d-e	12 mo	Oct	Certificate
IOWA					
[1] **Univ. of Iowa,** Iowa City	W. D. Paul, M.D. Olive C. Farr	b-e	12 mo	Sept	Certificate
KANSAS					
[1] **Univ. of Kansas School of Medicine,** Kansas City	Donald L. Rose, M.D. Ruth Monteith	a-b-d-e g^4	12 mo 4 yrs	Feb-Sept	Certificate Degree
MASSACHUSETTS					
Bouve-Boston School, in affiliation with Tufts College, Medford 55	Howard Moore, M.D. Constance K. Greene	g^4	4 yrs	Sept	Degree
Simmons College, Boston	Wm. T. Green, M.D. Arthur L. Watkins, M.D. Shirley Cogland	a^3-b-d-e g^4	16 mo 4½ yrs	Sept	Diploma Degree
Boston Univ., Sargent College of Physical Education, Cambridge	Kenneth Christophe, M.D. Adelaide McGarrett	a-b-d-e f-g^4	12 mo 2 or 4 yrs	Sept	Certificate Degree
MINNESOTA					
[1] **Univ. of Minnesota,** Minneapolis	Frederic J. Kottke, M.D. Ruby Green Overmann	d-f-g^4	2 yrs	Sept	Degree
[1] **Mayo Clinic,** Rochester	Earl C. Elkins, M.D. Darrell Hunt	a-b-c-d-e	2 yrs	Sept	Certificate
MISSOURI					
[1] **Washington Univ. School of Medicine,** St. Louis	Sedgwick Mead, M.D. Beatrice F. Schulz	f-g^4	2 or 4 yrs	Sept	Degree
[1] **St. Louis Univ. School of Nursing,** St. Louis	A. J. Kotkis, M.D. Sr. Mary Imelda	f-g^4	2 or 4 yrs	Jan-Sept	Degree

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
NEW YORK					
Albany Hospital, Albany (in affiliation with Russell Sage College, Troy)	John W. Ghormley, M.D. Gladys Woods	a-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
[1] **Columbia Univ.,** New York	Wm. B. Snow, M.D. Mary E. Callahan	a-b[3]-e f	12 mo 2 yrs	Sept	Certificate Degree
[1] **New York Univ., School of Education,** New York	George G. Deaver, M.D. Elizabeth C. Addoms	a[3]-b[3]-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
NORTH CAROLINA					
[1] **Duke Univ., School of Medicine,** Durham	Lenox Baker, M.D. Helen Kaiser	a[3]-b[3]-d-e	15 mo	Oct	Certificate
OHIO					
[1] **The Frank E. Bunts Educational Institute** (in affiliation with the Cleveland Clinic)	Paul A. Nelson, M.D. Dorothy Sparks	a-b-d-e	12 mo	Oct	Certificate Degree
PENNSYLVANIA					
[1] **D. T. Watson School of Physiatrics,** Leetsdale	Jessie Wright, M.D. Kathryn Kelley	a[3]-b[3]-d-e	12 mo	Oct	Diploma
[1] **Univ. of Pa. School of Auxiliary Med. Serv.,** Division of Physical Therapy, Philadelphia	George M. Piersol, M.D. Dorothy Baethke	e g[4]	12 mo 4 yrs	Sept-Feb Sept	Certificate Cert. & Degree
TEXAS					
[1] **Hermann Hospital,** Houston	Oscar O. Selke, Jr., M.D. Elizabeth McK. Barkley	a-b-d-e	12 mo	Oct	Certificate
[1] **Univ. of Texas School of Medicine,** Galveston	G. W. N. Eggers, M.D. Ruby Decker	a-b-e d	12 mo	Jan	Certificate Degree
VIRGINIA					
[1] **Med. College of Va.,** Baruch Center of Phys. Med., Richmond (in affiliation with Richmond Prof. Inst.)	Herbert W. Park, M.D. Susanne Hirt	a-b-d-e g[4]	12 mo 4 yrs	Sept	Diploma Degree
WISCONSIN					
[1] **Univ. of Wisconsin Med. School,** Madison	Harry D. Bouman, M.D. Margaret Kohli	a-b-c-e-f g[4]	12 mo 4 yrs	Sept Sept-Feb	Certificate Cert. & Degree
U. S. ARMY MEDICAL SERVICE					
Medical Field Service School, Brooke Army Medical Center, San Antonio, Texas, and Fitzsimons, Walter Reed, or Letterman Army Hospitals	Charles D. Shields, Lt. Col., M.C. Agnes P. Snyder, Major, WMSC	e	12[2]	Mar-Sept	Certificate

Entrance Requirements

FOR ONE-YEAR COURSE

a = Graduation from accredited school of nursing.
b = Baccalaureate degree with major in physical education.
c = Two years of college with science courses.
d = Three years of college with science courses.
e = Baccalaureate degree with required science courses.

FOR TWO-YEAR COURSE

f = Two years of college with science courses.

FOR FOUR-YEAR COURSE

g = High school graduation.

Footnotes

[1] Male students admitted.

[2] Apply directly to the Surgeon General, Department of the Army, Washington 25, D. C.

[3] Additional college science credits required.

[4] Advanced standing students accepted.

Please address initial correspondence to the School of Physical Therapy in the institutions listed. Tuition and fees will vary from school to school.

ANNUAL CONFERENCE

American Physical Therapy Association

★

June 14-20, 1953

★

BAKER HOTEL **DALLAS, TEXAS**

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For details see page 27

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